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THE OZARK BLUFF-DWELLERS

BY M. R. HARRINGTON

INTRODUCTION

AS THERE may be considerable delay in the final publication of the results of the recent archeological explorations in certain dry rockshelters of the Ozark mountains, carried on by the Museum of the American Indian, Heye Foundation, this brief preliminary paper is offered with a view of affording some idea of the nature of the work, and of the unusual character of the artifacts found.

In arid or semi-arid regions, such as Utah, it is not extraordinary that prehistoric objects of wood, basketry, or other perishable materials should be preserved in sheltered places; but that such preservation should occur in a humid country like the Ozark region of Arkansas, even in well-protected rockshelters, seems hardly to be credited. Yet our expedition happened to find a district where the rockshelter conditions were exactly right, and the result was an unexpectedly large and varied collection, including many prehistoric articles of wood, basketry, vegetal fiber, skin, and even feathers, in addition to such objects of stone, bone, and shell as are usually found in deposits of the same or of much later periods. The only other similar finds on record from humid regions of the United States have been in certain caves or rockshelters in Kentucky and Tennessee, which yielded many specimens of great interest, but, so far as the writer knows, no collection comparable in quantity and variety with that obtained by our Ozark expedition.

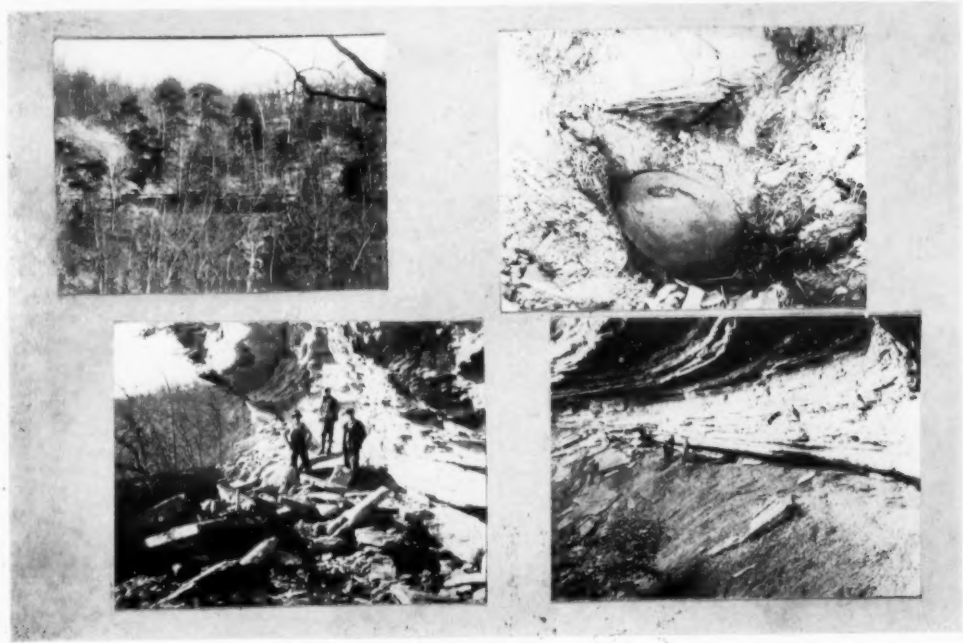
The district covered by the explorations is a small one, in the northwestern corner of Arkansas, where most of the stations investigated lay in Carroll and especially in Benton county, along

the upper valley of White river, the general course of which is eastward and southeastward. A few, however, are on Cowskin or Elk river, in McDonald county, the southwestern corner of Missouri, adjoining at the north. Cowskin river flows westward into Oklahoma, where it joins Grand river, flowing south, a short distance west of which the Ozark hills disappear and the traveler finds himself on the borderland of the Great Plains.

Without attempting, in this brief article, to trace in detail the causes which led to this exploration, it should be stated here that Dr. W. C. Barnard of Seneca, Mo., was the first to call the writer's attention to the possibilities of the region, and that Dr. J. H. Webb of Eureka Springs, Ark., Mr. J. A. Wyrick of Busch, Ark., and Mr. J. A. Truitt of Noel, Mo., rendered valued advice and assistance. Among the many others who helped were Dr. George M. Paxton of Baton Rouge, La., his brother Mr. Charles Paxton of Nail, Newton Co., Ark., and Mr. C. V. Robinson of Rogers, Ark.

When operations were commenced in May 1922, two members of the Museum staff, Messrs D. A. Cadzow, and C. O. Turbyfill assisted the writer. Work was suspended the first of September, the party returning to New York; but it was again resumed early in January 1923, and was concluded about the end of May. On this second trip Mr. Turbyfill, besides the writer, was the only member of the staff accompanying the expedition. However, Messrs William Knox, David Butler, and A. C. Weimer rendered faithful service as field assistants.

On arriving at Eureka Springs, Ark., we found that this part of the Ozarks consists of a kind of rolling plateau, which in places has been so dissected by stream action that it has become really rough, and on a small scale, mountainous. On the steep slopes forming the sides of the rugged gulches, and especially on the faces of the towering bluffs where a ridge juts out into the valley to the very brink of White river, are exposed strata, almost horizontal, but dipping slightly to the west, of such sedimentary rocks as limestone, shale, and sandstone. The topmost stratum, whatever it may have been originally, has become so decomposed until nothing is left but angular flinty gravel, more or less mixed with



Pl. I
A. An Ozark rockshelter.
B. A coiled basket used for lining a storage pit.
C. A rockshelter of the "fallen slab" type.
D. A rockshelter of the "shale-talus" type.

residual soil; this now composes most of the hilltops in the district; then comes a stratum of compact limestone, known to local geologists as the Eureka Ledge. This appears as an escarpment encircling the hills a short distance below their summits, often forming a veritable wall, twenty to forty feet high, in many places difficult or impossible to scale, for which reason it is called the "wall rock" by the country people. Immediately beneath the limestone is a stratum of shale, so much softer than the limestone that in certain situations it has weathered out, leaving the harder limestone overhanging without support. In such cases numerous masses have fallen from the under-side of the limestone ledge, and some of them have rolled down the hillside, with the result that a shed-like rockshelter, with limestone roof and shale floor, has been formed (Pl. IA). This is true especially where high bluffs overlook a river, and at the heads of hollows. In one kind of shelter, which may be called the "fallen slab" type (Pl. IC), although most of the floor may be covered with fallen masses of limestone, there are spaces between the innermost rocks and the cliff wide enough for a camp; and such places usually show abundant signs of ancient habitation by the presence of refuse and ash deposits. Many of these occupied shelters were damp, hence only artifacts of stone and of bone had been preserved; but in a few cases the shelters were entirely dry, so that basketry, textiles, and wooden articles were also found. Fortunately for our studies, the ancient inhabitants were accustomed to dig storage-pits between the rocks and in open spaces of shelters of this kind, where they stored the product of their harvests, and sometimes other materials. These yielded a great part of the collection. In long-occupied shelters of this class projecting corners and edges of rocks were literally polished by contact with the feet, the bodies, and the garments of the ancient dwellers; in some shelters angular markings were seen scratched into the rock, and in one case the figure of a man, rudely painted in red, decorated the back wall.

In the second kind of shelter, which may be called the "shale-talus" type (Pl. ID), most of the rocks that had fallen from the roof had rolled completely out of the shelter and down the hill; in these shelters the refuse of ancient camps was found in the

C. A rockshelter of the "fallen slab" type.
D. A rockshelter of the "shale-talus" type.

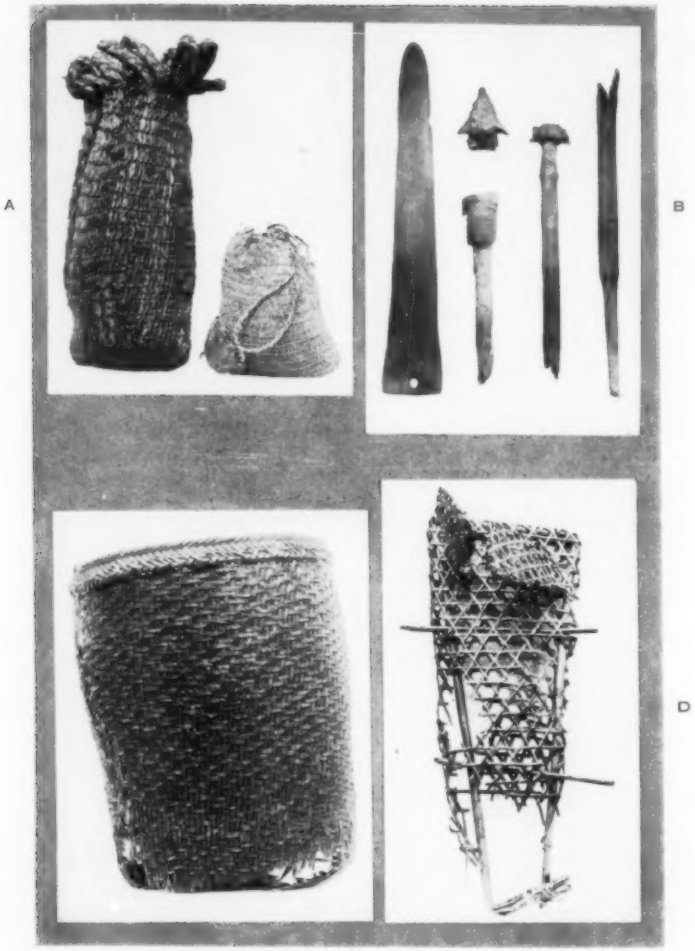
sloping shale talus, beneath which the storage-pits had been dug into the solid shale beds.

The typical refuse deposit found in all these shelters was an unstratified mass of dust, ashes, fragments of limestone and shale, dried grass, leaves, sticks, pieces of cane, cane basket splints, numerous corn-cobs, acorn and nut-shells, wild-grape stems, bark and Indian hemp in various stages of preparation, fragments of baskets, bits of woven bags and mats, flint chips, the bones of food animals, and sometimes even fish-scales, feathers, deerhair, and scraps of skin and sinew.

It was soon discovered that, so far as the shelters on upper White river were concerned, and with the exception of a few articles found only on or near the actual surface, we were dealing with a single culture, for the character of the specimens was quite uniform throughout the deposits from top to bottom. For this reason, and because the cliffs are locally known as "bluffs," it was decided for convenience to apply the term "Ozark Bluff-dweller" to their ancient inhabitants. When we later moved to Cowskin river in Missouri, however, it was found there that the alien surface objects became more numerous, and in two rock-shelters a distinct stratum containing such articles could be distinguished, lying above the Bluffdweller layer. This new culture will be called, for the present, at least, the "top-layer culture."

Bluff-Dweller Culture

Beginning our discussion of the "Bluff-dwellers" we find that as sources of food they practised hunting, agriculture, the gathering of natural products, and fishing, named in the apparent order of their importance. Bones of many food animals, almost always split for the marrow, scattered throughout the deposits, tell of hunting. The favorite meats, judging by these, were vension and turkey, although bear, elk, buffalo, and smaller creatures, including turtles, were sometimes taken. With what weapons was this hunting done? The finding of heavy flint points, mainly too large for arrows, and later of wooden foreshafts (Pl. II B), and pieces of cane shafts for spears, together with the wooden atlatl, or spear-thrower, (Pl. III B) for hurling them, shows the use of these imple-



Pl. II
A. Woven bags.
B. Bone knife and wooden foreshafts for spears.
C. Pack-basket of cane splints.
D. Baby-carrier woven of cane splints.

ments. It was noted that true arrowpoints were found only on the surface, probably having been left by a different and later people, and that arrows were rare in Bluff-dweller deposits, when found consisting as a rule merely of a cane shaft notched for the bow-string at the butt, and pointed at the anterior end, this point being hardened by fire. Only a single small piece of what may have been a bow was found in any Bluff-dweller deposit, and this is doubtful.

The type of atlatl (Pl. III B), of which one complete and several broken examples were secured, is made of wood, about 19 inches long, with a projection at one end, against which the butt of the spear was rested, and a transverse peg at the other end for grasping, a type differing in detail from all spear-throwers hitherto known, excepting an Aztec type found in the ruins of a temple in the City of Mexico. The average spear—or dart-foreshaft is of wood, about 8 inches long, sometimes ornamented with incised lines. The flint spear-head was fitted into a slot in the anterior end, and bound fast with sinew, or fiber thread, or fiber thread plus pitch, or bark thongs, or rawhide. The posterior end of the foreshaft was usually tapered for insertion into the main shaft of cane. The type of spear-head most characteristic of the Bluff-dweller is the "diamond-shape," with more or less pointed base, but side-notched and stemmed forms frequently occur.

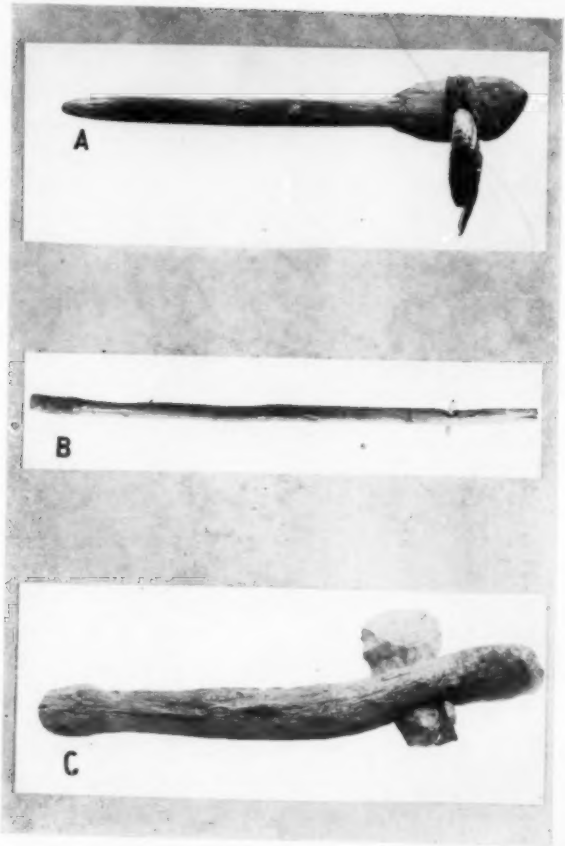
A combined tool and weapon useful in hunting, as well as for other purposes, was the axe or hatchet (Pl. III A). For a long time we wondered what kind of axe the Bluff-dwellers used, as no celts nor grooved axes appeared in the excavations. We considered the occasional large, oval, chipped flint blades occasionally found to be unfinished spear-heads, perhaps, or rejected forms, and it never occurred to us that these were the standard axes of the people until one was found attached to its original wooden handle the tip of the flint blade being thrust through a hole in the haft and tightened with small wooden wedges. Another possible weapon or skinning-tool is a knife-like implement of buffalo or elkbone, about 10 inches long. (Pl. II B).

The collection illustrating Bluff-dweller agriculture is especially rich and varied. The extensive use of corn is shown by numerous small and slender cobs, of husks, and by grains (usually

yellow and red) found loose in pits, or in bags with other seeds. The planting of beans (usually dark in color) is proved by numerous specimens found in bags, and by bean-pods in the refuse deposits. Squash is shown by fragments of shells and one complete dried specimen, also by seeds in bags; sunflowers by parts of the heads, some large, in the refuse, and seeds in bags. In addition to these products, gourds were raised for the manufacture of bottles, cups, and dishes, and several kinds of seeds of plants not yet identified were found in the seedbags with the rest.

The most interesting agricultural implement found was a complete hoe with its perforated mussel-shell blade lashed fast to its wooden handle with bark thongs and native string (Pl. III A), but various digging-sticks—plain sticks about 2 feet long, some nicely rounded and worked, and all showing wear at the ends—also appeared. Some hoe-blades of stone were procured.

The typical method of storing corn, or, at least, one of the methods, was to cache it in a pit in a dry rockshelter. Such pits were often circular, in which cases they averaged about 3 feet in diameter and 2 feet deep; others were oblong in form, about 2½ feet wide and 4 feet long, with a depth of 2 to 3 feet. Many of the older pits were dug into the solid undisturbed stratum of shale, which evidently had been pried out with digging-sticks, deer-antlers, and the like; later ones were dug, partly or wholly, in the refuse left by earlier dwellers. Almost always a three- or four-inch layer of long grass was used as a lining, which often was supplemented with pieces of old woven bags, baskets, or mats (Pl. I B); but sometimes leaves, leafy twigs from trees, pieces of bark, or thin slabs of limestone were used as lining. Among the crops stored in such pits were corn, beans, sunflower seeds, and some of the unknown seeds; for sometimes scattered examples of these had been left in the grass lining. The purpose of the inner lining made of pieces of old bags and baskets, however, was apparently to prevent this loss of loose grains. Seeds for spring planting were kept usually in woven bags (Pls. II A, IV A) or in packages, sometimes a number of species together, the bags being placed in nests of grass under the edges of rocks, or in the pits themselves.



Pl. III. A. Hoe with mussel shell blade and original wooden handle and wrappings.
B. Atlatl or spear-thrower.
C. Axe with chipped flint blade and original wooden handle.

and in one instance a whole warty squash had been allowed to dry on the vine and then stored away for spring use.

The only corn-preparing implements found by the expedition were grinding slabs, or "metates," simple flat stones with shallow depressions, showing use, employed with a flat, oval or rectangular hand-stone, or "mano," to grind corn, and sieve-baskets for sifting the meal. Pieces of flat cane baskets indicate the possible use of the winnowing-basket as well, although of course, these may have served other purposes.

Turning to fishing, we found fragments of several nets, some of fine, others of coarse, mesh, but all neatly made of Indian hemp cords (Pl. IV C). Of course these may have been rabbit-nets, such as were used in parts of the Southwest, but if so, how did the Indians catch the fish whose scales and bones are so numerous in the shelters? The fish-bones have not all been identified, but some catfish remains were recognized, and the present Ozark natives pronounced some of the scales to be those of buffalo fish, and others of "red-horse." No notched pebbles of the sort usually termed net-sinkers were found, but a rough fragment of limestone was unearthed, with natural protuberances which kept an encircling string from slipping off: this may have been used as a sinker.

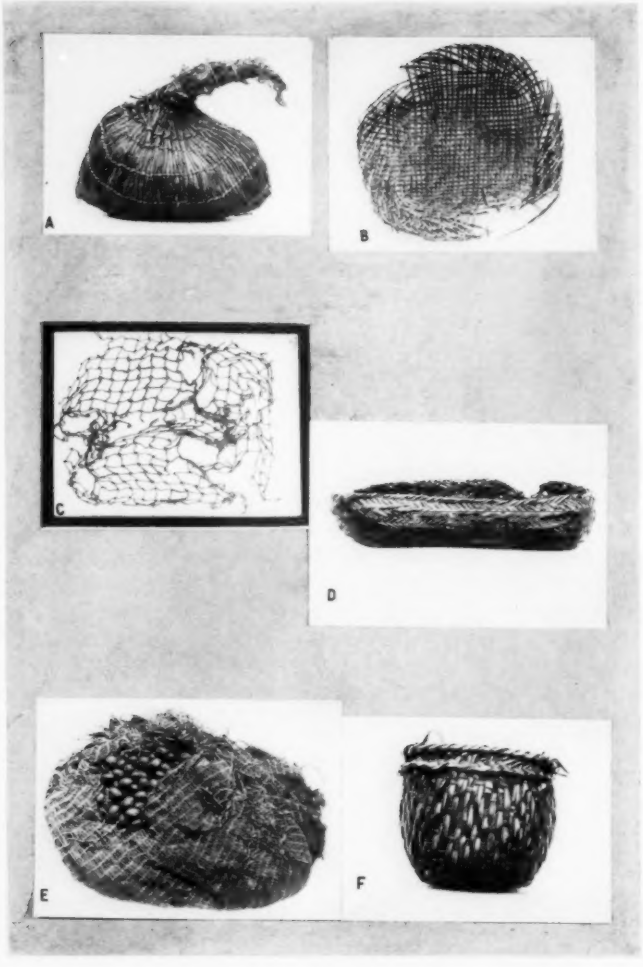
We found no fish-hooks, although a few made of bone are reported from the shelters by local collectors, especially on Cowskin river. These, it is observed, have been found usually in stations where the "top-layer culture" element is large, therefore it is suspected that the bone fish-hook belongs to the "top-layer" rather than to the "Bluff-dweller" series.

Literally bushels of acorn-cups, acorn-shells, the shells and hulls of chinkapins, walnuts, hickory-nuts, and hazelnuts, and masses of wild-grape stems, show how the Bluff-dwellers utilized the natural products of the forest in season; and that they did not disdain the Southwestern desert habit of gathering wild seeds is shown by the finding of species in the pits which did *not* appear in the carefully cached collections of spring seeds for planting. One woven bag filled with acorns (Pl. IV E) packed in grass was found in a pit.

Turning from the foods to the clothing of these people, we found no head-gear, although two woven caps have been reported one from White, the other from Cowskin river; but robes of several classes were uncovered. One was made of a large deerskin with the hair on, sometimes of two such deerskins stitched together; but feather robes were almost as common. A long fiber cord was first made, then wound with downy feathers until the result was a fluffy rope, like marabou, only not so thick. This formed the warp of the robe. The weft was composed of fiber or deerskin cords, without feathers, twined in pairs, the rows of twining being perhaps an inch or two apart. This made a warm, light, strong robe. In a few robes, of which fragments were found, strips of furry skin, possibly rabbit-skin, had been wound around the foundation cords in place of feathers. Pieces of what seem to have been woven fiber robes without the addition of feathers or fur were also found. The deerskin robe, at least, was sometimes belted about the person with a fur girdle, the ends of which were perforated and provided with tying-thongs. Only one breechcloth was found in place on a desiccated body, this was a bunch of long grass knotted at one end. First, apparently, a fiber cord had been wrapped around the waist five or six times to serve as a belt; then the knot in the bunch of grass had been slipped under this belt in the back, and then the loose grass was brought forward between the legs and the ends tucked under the belt in front.

One semi-mummified human body was found still wearing tanned deerskin leggings and moccasins; the leggings were of a wrapped type, suggesting those worn by some Pueblo women today, and were attached to the moccasins, which, although patched almost beyond recognition, were soft-soled, and seem to have been originally puckered in front to an instep piece, somewhat like the present northeastern Algonkian type, yet differing from anything now used. Small fragments of deerskin moccasins were quite common.

In bad weather, thick, clumsy overshoes woven of grass were worn, perhaps over the deerskin moccasins; fragments of these were fairly common, and one, still caked with the mud of some forgotten Ozark winter, was nearly perfect. It had a bunch of



Pl. IV
A. Bag, woven of grass, containing seeds.
B. Basket tray of wickerwork.
C. Fragment of a fish-net.
D. Basket woven of cane splints.
E. Woven bag containing acorns.
F. Small basket woven of cane splints.

loose grass for an insole, matted and flattened by use. Sandals also were much used, probably in warm weather, woven of some tough native grass. One of these, found entire, tie-strings and all, exhibits a double weave, presenting one kind of weaving to the ground, another to the foot of the wearer. Ornaments were not abundant; but a few bundles of feathers tied with string may have been kept as adornment for the hair; and white, yellow and red mineral paints were found. The only pendants are those of mussel-shell, triangular in shape, with a perforation near the apex. One shows a neat, engraved, angular, geometric pattern. The beads most abundantly used were made from small round seeds, of which hundreds appeared with one skeleton. Some tiny seed beads, with their original fiber strings, are snow-white, and at first were mistaken for shell. A number of large beads were really made of shell, from the columella or core of some species of conch found no nearer than the Gulf of Mexico—the only objects discovered indicating direct trade or communication with distant regions. Fans were made of feathers, strung together with fiber cords or strips of quill.

Turning to the utensils and implements not hitherto discussed, we find the basketry among the most interesting. Thanks to the Bluff-dweller habit of lining storage-pits with old baskets (especially pieces of them), many specimens were gathered, constructed chiefly of thin splints peeled from the rind of the wild cane, and made usually in twilled, but sometimes in plain checker, weave. A few have intricate patterns woven in, similar to those still seen among the Chitimacha Indians of Louisiana, for example. Black and red dyes were occasionally but not commonly used. The borders are often intricate and ingenious. A type of coarse basketry was made from the split canes from which the splints of rind for making the fine baskets had been peeled, and occasionally narrow wooden splints—split shoots resembling willow—took the place of cane splints.

Four principal types of cane baskets were collected—one a flat, dish-like form, another similar but with an open weave at the bottom for use as a meal sieve; then there is the deep basket which varies in size from a tiny specimen (Pl. IV F) holding about a

cupful, to large pack-baskets with a capacity of a bushel or more (Pl. II C). A fourth style is oblong in shape, with a diagonal twilled weave (Pl. IV D).

Made of basketry, but still hardly a basket, is the typical cradle-board, or baby-carrier, of this people, of which one nearly complete and two fragmentary specimens, were found. This was made by bending a cane to form a kind of truncated, triangular figure of suitable size (about 2½ ft. long), and tying the ends together; this was then covered on both sides with a webbing of split cane, made in the open cross-warp weave, like a chair seat. Near the larger end two little arms in the same weave were made to support the hood, intended to shade and protect the infant's face. This hood was made also of basketry, but in the more ordinary twilled weave, and is not shown in our illustration (Pl. II D). On this cradle were found a few bones of a very young infant, imbedded in the draggled small feathers and vegetal down which had composed its bed. The cords used in binding the baby to its cradle were attached to the cross-sticks seen in the picture, but were so badly cut by rats that they could not be preserved in place. In point of numbers, coiled basketry came next to the twilled and checker weave made of cane. These coiled baskets were all bowl-shaped and sometimes large, but without decoration of any kind. One complete example was found. (Pl. I B). The foundation is made of slender wooden rods resembling willow-shoots, while the stitching seems to be of bark thongs. Still another type of basketry was woven of split shoots resembling willow, in the form of oval trays, and suggesting a type of wicker baskets still seen in certain Southwestern pueblos (Pl. IV B). At first we were inclined to attribute the cane twilled, coiled, and wicker types of basketry to different peoples, but when we found examples of all of them used to form the lining of the same storage-pit, we decided that all these forms were made by the same people at the same time.

Of basketry also is a type of water-bottle lined with pitch on the inside; of this we found only a fragment, but it is noticeable that the weave resembles the twined weave of the present Paiute water-bottles rather than the coiled type of the Apache, for example. Perhaps for carrying water were bucket-shape vessels

of bark (of a species not yet identified), shaped and sewed somewhat like the birchbark "nagon" familiar as a modern Indian maple-sugar receptacle in the Great Lakes region. Of these, one small specimen was recovered nearly entire. Gourds were probably used largely as water-bottles, although no perfect examples were found, and were also employed extensively for cups, bowls, and dishes of different kinds. When cracked they were repaired by stitching with fine fiber thread, and sometimes were provided with fiber-string handles.

The finding of a piece of a woven bag with pitch on the inside suggests that these too may have been used sometimes as water-bottles; and woven bags without the pitch served many other domestic purposes (Pl. II, A, Pl. IV A, E). Although materials range from grass to bark fiber and wild hemp, or combinations of these, with one exception the technique is the simple twined weave seen in the plainest of the woven bags still made by the central and northern Algonkian and the southern Siouan tribes. These are rectangular and flat, as are most of the ancient bags; but some of the latter are long and wallet-like, others of cylindrical form. The sole exception to the twined type of weaving is a coil without foundation, or netted coil fabric, suggestive of the Southwest. It may truthfully be said that, with this exception, all of the true textiles found (excluding basketry), are of the twined type. The bags were evidently used for the storage of seeds, medicines, and miscellaneous effects. Most of them are fragmentary or have been badly damaged by rats, but a few entire examples were recovered. Some had been damaged in Bluff-dweller days, and had been repaired with pieces of deerskin neatly stitched to the fabric (Pl. II A). In capacity the bags ranged from perhaps a pint of seeds to about a bushel. Among the artifacts most commonly found were pieces of native cordage, ranging from thread to rope and illustrating the use of Indian hemp, grass, and various bark-fibers, especially cedar. With these objects should be included thongs of leatherwood and perhaps of other barks, and of rawhide and dressed deerskin. Some of the cordage is braided, but most is twisted like the usual modern string and rope.

The use of gourd dishes has been mentioned. In addition it was found that very large mussel-shells were prepared for use as receptacles by grinding off the hinge and the rough, dark-colored exterior. Smaller mussel-shells seem to have been often adapted by a little grinding for use as spoons, but no trace of either wooden bowls or wooden spoons was discovered. The carapace of the "land turtle" seems to have been quite generally used as a bowl also, sometimes with little elaboration, again with all the interior bony processes ground off and the whole shell carefully smoothed and polished.

During the early part of the explorations it was believed that the Bluff-dwellers had used no pottery, for some long-inhabited shelters yielded little or none of it, and the few fragments found appeared on or near the surface; but from the occasional association of typical Bluff-dweller spearpoints, and the like, with a certain class of pottery, it was finally decided that they used such ware, probably taking it up toward the end of their stay. By observing the class of pottery associated with their remains, we were ultimately able to determine that it was sand- or crushed stone-tempered or more rarely, shell-tempered, undecorated, usually dark in color, frequently quite thick and hard, and that the vessels were frequently flat-bottomed; in fact, the ware suggests somewhat the coarser variety of pottery seen in the Caddo region of southwestern Arkansas, but lacks its decoration. We learned also that some of the pottery found on the surface—a shell-tempered, decorated variety—had been left by a different and later people. This will be described more fully later, in connection with a discussion of the "Upper-layer Culture."

Among miscellaneous domestic implements may be mentioned tough pebbles showing use as chipping hammers, rude flint scrapers, bone awls of varying sizes and shapes, cylinders of antler used perhaps in chipping flint, a "digging-stick" of antler, awls of cane and of wood, and large needles of cane used probably in making rush mats, a few fragments of which appeared.

Only two articles were found possibly pertaining to the ceremonial life of the Bluff-dwellers—one a stick carved in a peculiar way and painted white, to which no practical use can be assigned;

the other, the remains of a "medicine-bag," or sacred bundle, found where a burial had evidently lain. This consisted of a woven bag of Indian hemp, containing articles used probably as charms, including two beaver-teeth (one wrapped with deerskin at the base), the beak of a bird, other bird bones, some worked pieces of calcite, and the like. No pipes were found, but two of tubular form have been obtained in the region by local collectors, one of these in Jacobs cavern near Pineville, Missouri, which has yielded typical Bluff-dweller stonework. This pipe is engraved with fine zigzag lines.

The typical manner of burying the dead practised by the Bluff-dwellers was to dig a hole, much like a storage-pit, between the rocks of the shelter or between the fallen rocks and the back wall; this hole was lined with grass, on which was spread a deerskin robe with the hair on, a feather robe, or both, or sometimes a plain fiber robe; then the corpse was laid on its side on this bed, with knees drawn up and arms flexed. A covering of pieces of old bags, mats, or grass was sometimes laid over the body; next came a layer of poles and sticks, preferably of cedar; then dust, ashes, and small rock fragments, and finally, in some cases, large pieces of rock. Double and triple burials were made at times, and occasionally burials of cremated remains. In very dry spots the remains were mummy-like, much of dried skin and tissue being preserved, with portions of clothing, but often cave rats had picked some of the bones clean, or had even eaten many of them outright. In damp situations only bones remained, of course.

Variations in this mode of burial were observed, especially in the case of children. The rat-gnawed bones of an infant were found amidst the draggled feathers and vegetal down of its bed on its cradle-board woven of cane; another had been wrapped in shredded bark and laid on some pieces of old baskets, then covered with its cradle (although this had been outgrown at the time of the child's death), and the hole filled with dust and limestone slabs. A third infant had been wrapped with long grass, tied into a bundle with pliable willow-like shoots, and a fourth had been placed in a large woven bag and packed with grass—then the grass had been set on fire. No attempt had been made to orient the

bodies, the only uniformity being that all were flexed and lying on their sides, except the baby on the cradle-board. The skeletal material has not yet been studied, but the impression gained as the burials were uncovered was that of a heavily-built, sturdy people of medium height. One skull, that of the infant wrapped in grass, shows an artificially flattened frontal; and we heard of two similar cases found by local collectors: one in a rockshelter near Noel, Mo., the other in an open-air cemetery far down White river, between Branson, Mo., and Cotter, Ark.

Attempting to work out the relationship of the Ozark Bluff-dwellers by comparing their products with those of Indian tribes known today, we find the following resemblances:

To Muskhogean and surrounding tribes:

- Cane basketry
- Feather fans
- Large shell beads made from conch-cores

To ancient Caddos:

- Types of spear-heads
- Tempering and form of pottery

To Central Algonkians and Southern Siouans:

- Most woven bags

To Northern and Northeastern Algonkians:

- Bark buckets
- Moccasins

To Southwestern tribes:

- Sandals
- Coiled basketry
- Coiled netted bag
- Wicker baskets, Pueblo style
- Atlatl or spear-thrower (an Aztec type)
- Spears with foreshafts
- Metate, and mano or hand-stone
- Wrapped-warp feather robes
- Basketry water-bottle lined with pitch
- Wrapped leggings
- Tubular pipes (probably)

It will be seen that of the nineteen characteristics recorded as typical of the Bluff-dwellers, eleven point toward the Southwest and eight in various other directions, which might be taken to indicate that this people originated in what is now Arizona, New Mexico,

or even Old Mexico. We must not place too much reliance on this form of testimony, however, for it is probable that in Bluff-dweller days some of these characteristics were distributed over a much greater area than has been hitherto realized. For example, Mr. Wm. E. Myer, of the Smithsonian Institution, informs the writer that he has secured a fragment of a wrapped-warp feather robe from a rockshelter as far east as the Kentucky-Tennessee mountain region, and Cushing found the atlatl (although of different type) as far east as Key Marco, Florida; besides which, it is more than possible that the large projectile points found on certain early sites on the Atlantic Coast (in New Jersey, for example)—points too large to give satisfactory service as arrowheads—were in reality used with atlatl darts. There is some evidence also that coiled basketry was once quite widely distributed through the East.

It is most interesting to note that the only record of other atlatls exactly like the Bluff-dweller type (Pl. III B) pertains to those found in the ruins of the Aztec temple of Huitzilopoxtli and Tlaloc in Mexico City.[1]

There are several reasons why we considered our Bluff-dweller deposits to be not only pre-Colonial, but really of considerable antiquity; but to begin with, we must disclaim any attempt to determine the exact, or even the approximate, number of years. It is true that in some shelters the Bluff-dweller refuse reached to the very surface, but in other places, where the deposits have not been exposed to the trampling of cattle and to similar agencies, sometimes a foot or more of small rock scales and fragments had accumulated on top, and in some cases three or four feet of shale talus, and in still others slabs weighing tons, had fallen upon the ashes and refuse.

Not an article was found suggesting any European influence in these Bluff-dweller deposits—they were plainly pre-Colonial. But they were more than that: in two shelters on Cowskin river the remains of another and later culture lay above them, which also, by the same criterion, was pre-Colonial. In themselves, in

[1] Manuel Gamio. Vestigios del Templo Mayor de Tenoxtitlán descubiertos recientemente, *Ethnos*, t. I, núm. 8 a 12, Mexico, Nov. 1920 á Mzo. 1921.

many cases, the objects gave an impression of great age, as for instance, the axe (Pl. III C) with its rude, oval, chipped flint blade and stout oak handle, and this was the only type of axe found. No grooved axes were present, nor even fragments of them, and the single celt obtained was so near the surface that it undoubtedly belonged to the later "top-layer" people. Most known prehistoric peoples of North America, except in the far Northwest and on the Pacific coast, used either the celt type of stone axe or the grooved axe, or both, having progressed beyond the chipped-axe stage, so suggestive of paleolithic Europe. Another thing suggesting age is the atlatl, or spear-thrower, with its darts, which, although known to have existed in Utah and the vicinity in pre-Cliffdweller days, apparently remained only among the Eskimo in the north, and the Aztecs and other tribes in the south, when America was discovered, the bow and arrow having completely taken the place of the less efficient weapon in what is now the United States. This question of the age of the Bluff-dweller remains should be further studied before any definite conclusions are reached. The writer thinks, however, that they may prove at least as old as the pre-Cliffdweller Basket-maker people of Utah, whose culture shows a similar, but somewhat higher, stage of advancement.

Among our miscellaneous discoveries was the fact that the Bluff-dwellers did not live entirely in rockshelters, for at least two sites were located—one on the banks of Cowskin river below Noel, and one on White river near Beaver, where the series of stone artifacts was typical, and there being no rockshelters near, the people must have occupied tents or buildings of some sort. However, while spear-heads of Bluff-dweller types are quite common all along the rivers of their ancient territory, village-sites showing a complete series of their characteristic stone implements are rare.

In a series of explorations to determine the geographical distribution of Bluff-dweller culture, we examined a rockshelter on Kings river, and made a few tests in others near Nail, in Newton county, Arkansas, in both of which regions we found distinct evidences of typical Bluff-dwellers; but near the junction of White and Buffalo rivers, somewhat farther east, few traces of this people

were seen. This is probably near their eastern boundary. We can therefore say with some degree of probability that the Ozark Bluff-dwellers occupied a territory reaching from the edge of the Oklahoma prairies eastward at least to about the mouth of Buffalo river, a distance of some 175 miles. The writer has information leading him to look for their extension toward the south at least as far as Arkansas river, while some of Fowke's finds in central Missouri are distinctly Bluff-dweller in appearance. Probably their territory was roughly 175 or 200 miles in each direction.

Top-Layer Culture

It has already been mentioned that during our work in the rockshelters on White river in Benton and Carroll counties, Arkansas, we noticed that there occasionally appeared, near the surface of the deposits, articles of a kind never present in the lower levels. These were, first of all, tiny arrowpoints of flinty materials, and secondly, grooved maul-heads of stone, while a single pecked and ground celt was also found. At first we thought that all the pottery belonged to the same category, but this judgment we were later able to revise, as we discovered that *shell-tempered* pottery only appeared at the surface, and sand-tempered as well as shell-tempered, occasionally at deeper levels.

When work on Cowskin river and its tributaries in southwestern Missouri was commenced, we found this surface material much more abundant, and in two cases distinct layers were found in rockshelters superposed on typical Bluff-dweller deposits. From the contents of these layers we were able to identify the articles mentioned, found near the surface in the White river stations, as belonging to a culture distinct from that of the Bluff-dwellers, and were able to add certain objects to the series of articles typical of it. These were neatly made "spoon-shape" or "duck-bill" scrapers, usually of curved form, the unchipped side being concave; double-pointed flint knives with sharply beveled edges; and grooved arrow-shaft smoothers of sandstone. We also learned more about the pottery: that the top-layer variety was not only shell-tempered, but that the vessels were of globular form with flaring rims, were decorated with angular incised designs, and were provided with flat, strap-like handles.

At the Elk Springs rockshelter we found in one place fragments of certain coarse, sand-tempered, undecorated vessels that were often flat-bottomed, a class associated with the Bluff-dweller deposits, while directly above, in a distinct surface layer, appeared the typical top-layer shell-tempered pottery. We also noted that stone mortars with cup-like grinding cavities (not metates), and circular flat stones evidently used for both grinding and hammering, were associated with this top layer; also that the people seem to have used a great deal more deerskin than did their predecessors, for the scraps were much more numerous. That they killed more game in a given time is indicated by the fact that bones of food animals were much more numerous in the top layer in proportion to the bulk of the deposit. It was noticeable also that the bones of large animals, such as elk and buffalo, were more numerous in proportion here than in the older deposits. The bow and arrow of the "top-layer" people were evidently more efficient than the darts and spear-throwers of the Bluff-dwellers.

Fiber strings were about the same in both layers, but we have not yet been able to identify any particular sort of basketry or weaving as "top-layer," unless it be a type of coiled basket made on a foundation of grass, instead of wooden rods, such as the Bluff-dwellers used. Corn-cobs from the top layer averaged considerably longer than those of the Bluff-dwellers. One piece of a large, strong bow was found in the "top-layer."

Several months after the conclusion of the Ozark work, the writer happened to visit the Nemaha settlement of the Iowa Indians near Whitecloud, in the northeast corner of Kansas; and while there met Mr. Edward Park, a local archeologist, who, in kindly exhibiting his collection, remarked that he had found traces of three distinct Indian cultures in that vicinity, one of which, seen at two sites only, was characterized by a series of objects *identical* with those the writer had found to be typical of the "top-layer culture" in the Ozark rockshelters, plus disc-pipes and small L-shape pipes of catlinite, or other red stone, and a few axes with wide, shallow grooves. Mr. Park regards this culture as the latest of the three, because the skeletal remains associated with this series of artifacts are the best preserved. The resem-

blance between the "top-layer" culture of the Ozark rockshelters and Mr. Park's "latest culture" can best be expressed by the following table

	Ozark "Top-layer"	*N. E. Kansas "Latest"*
Arrowpoints	Very small, often triangular.	Very small, usually triangular.
Knives	Double-pointed, beveled.	Double-pointed, beveled.
Scrapers	"Duck-bill" or "spoon shape."	"Duck-bill" or "spoon shape."
Axes	Celt.	Celt.
	———	Axe with wide, shallow groove.
Hammer-grinders	Flat, circular.	Flat, circular.
Mortars	Cup-shape cavity.	Cup-shape cavity.
Pottery	Shell-tempered, globular form, flaring rim, angular incised decoration.	Shell-tempered, globular form, flaring rim, angular incised decoration.
Pipes	Small L-shape catlinite pipes have been found near our Ozark rockshelters.	Disc-type, also L-shape, all small, of catlinite and red sandstone.
Shaft-smoothers	Sandstóne, grooved.	Sandstone, grooved.

Mr. Park's discoveries are valuable in two ways in bearing on this discussion of the top-layer culture of the Ozark rockshelters: first, because he has added the disc-pipes to the series; second, because he has increased our knowledge of the distribution of this ancient people.

The writer has a theory that the "top-layer" people of the shelters and the "later" people of northeastern Kansas were Siouan, perhaps Kansa or Osage (who are closely related), this view being based on the following arguments:

In the western Ozark rockshelters the "top-layer" culture is that of a people who were apparently the last to occupy the region. Now the Osage were found by the first whites in possession of this district, and therefore were the last representatives of an aboriginal culture; hence the Osage and the "top-layer culture" should be identical.

This argument would be conclusive if it were not for the fact that, while the "top-layer" culture is the latest in the rockshelters, it may not have been the latest in the district. The Osage may

have come in after the "top-layer" people had vanished, and claimed the region without occupying the shelters.

We have additional reasons, however, for believing the "top-layer" culture to be Osage, or at least, Siouan. Mr. Park's work has shown the disc-pipe to be connected with this culture. Now the disc-pipe has been found in undoubted old Osage and Kansa war-bundles; and its distribution in Wisconsin corresponds with the ancient territory of the Winnebago. So we have considerable justification for believing it to be a Siouan form. We may argue that if the disc-pipe is Siouan, and the disc-pipe is connected with the "top-layer" culture, then the "top-layer" culture is Siouan. But of course it is possible that other tribes, as well as those of Siouan origin, used the disc-pipe; hence this argument is not conclusive.

Another argument helping to identify the culture as Siouan lies in the use of the circular, flat, combined hammer-and grinding-stone. We know it to be typical of our "top-layer" culture; also we know it to be *still in use* by the Osage, Kansa, Iowa, and Oto, all Siouan people. This, of course, is not conclusive either, but serves to strengthen the theory.

It will be seen from the above that there are several reasons for believing our "top-layer" culture to be Siouan, perhaps Osage or Kansa; and the writer at present knows of no argument indicating the contrary. He would be glad to hear from students of the subject who may be able to furnish additional data.

Mr. Park thinks, however, that we have historical reasons for believing that the Osage never lived in northeastern Kansas, but farther east. We do know, nevertheless, that the Kansa did occupy that region at one time. The Kansa and the Osage are so nearly alike in culture that it may be quite possible the Osage left our "top-layer" culture specimens, and the Kansa, Mr. Park's "latest culture" objects, although the specimens from the two places are practically identical.

We were told of one or two village-sites on the Cowskin river bottoms near Noel, Missouri, yielding "top-layer" projectile points and scrapers, but were never able to visit them.

Traces of Other Cultures

On the bottom lands along both Cowskin and White rivers we found occasional sites, the specimens from which did not fit in with either our Bluffdweller or our "top-layer" cultures. Grooved axes of ordinary type were characteristic of these sites, and projectile points of various forms, rather lacking in character. We were unable to enter into a further study of this culture to determine its relationships.

The possibility of the existence of a very ancient culture, perhaps even older than that of the Bluffdwellers, is suggested by the discovery, lying on the surface of the gravels constituting the bed of Clifty creek, in Carroll and Benton counties, of a number of artificially shaped flints, all more or less water-worn. Some might have been merely the rejects of the comparatively modern Indian flint-chipper, but others resembled completed implements of crude and early types suggesting certain European paleolithic forms. An implement of the latter type was picked up also in the bed of Spider Creek, near Busch, Carroll county. Such objects are interesting and suggestive, but unfortunately prove little unless found *in situ* in deposits whose antiquity can be demonstrated.

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RACE TYPES IN POLYNESIA[1]

By LOUIS R. SULLIVAN

THE now rapidly accumulating data on the biology of the inhabitants of Polynesia are beginning to indicate clearly that the "Polynesians" are in no sense to be considered a uniform racial type. The "Polynesian type" is an abstract concept into the composition of which have entered the characteristics of several physical types. It is roughly comparable to an "American type," defined by the average characteristics of the Anglo-Saxon, Slavic, Mediterranean, Indian, Negroid and Mongol elements which inhabit America.

Anthropologists have disagreed on the racial affinities of the Polynesians. Some have classified them as Mongols, others have classified them as Caucasians, while still others have maintained that they are a separate race. This in itself is strong evidence that the Polynesians are a badly mixed people for whenever there has been a general disagreement as to the racial affinities of any group it has been found almost invariably that the group was a non-homogeneous group.

There is much vagueness as to what constitutes a Polynesian but as generally conceived and described, the Polynesian is a tall and remarkably well-proportioned type with a short head, a high and relatively narrow nose, straight or slightly wavy black hair and a yellowish brown skin. Now, as a matter of fact, in no part of Polynesia from which we have data, does this type make up the entire population at the present time. There is strong evidence that in times past, and not so very long past either, this element was entirely absent, or not present in any appreciable strength.

[1] Based upon the published craniometric and osteometric literature and upon the field data on the living Polynesians obtained by members of the Bayard Dominick Polynesian expeditions of the Bernice Pauahi Bishop Museum.

Look for a moment at stature or body height. The living men yield the following averages in centimeters:

Hawaiian 170	Marquesan 170	Tubuai 171	
New Zealand 171	Tuamotu 172	Easter Island 172	
Samoa 172	Tahiti 173	Tonga 173	Cook 176

Compare with these figures the reconstructed stature of the skeletal remains which have been studied:

Hawaiian 163	New Zealand 163	Chatham Island 165	other Polynesians 166

These differences are enormous and amount in some instances to nearly three inches.

The cephalic index tells a similar story of change:

	Cephalic Length-Breadth Index	
	Skeletal	Living
Tahiti, Pomotu, Tubuai	76	85
Tahiti	77	86
Maori	74	78
Samoa	78	84
Marquesas	76	79
Hawaii	80	84

Brachycephaly or a tendency to short-headedness is characteristic of a majority of the living peoples, but not of the prehistoric peoples represented by the skeletal remains.

A study of the nasal index complicates matters somewhat. The nasal index of the skull varies from 44 in the Moriori to 53 in the remains from Easter Island. In detail it is distributed as follows:

Moriori 43.9	Maori 47.9	Marquesas 49.3	Tahiti 49.4
Hawaii 49.9	Easter Island 52.5.		

On the living the nasal index has different values of course, but is similar to the nasal index in the skull in that a small index indicates a narrow nose and a large number indicates a wide nose. The values on the living for nasal index are:

Samoan 74, Tonga 76, Maori 76, Hawaiian 78, Tahiti 80, Tuamotu 80, Tubuai 80, Marquesas 82, Easter Island 82, Cook 85.

There is seen to be a tendency to both broad noses and narrow noses in both the long-headed and short-headed groups.

In the Chatham Island material we have the long head combined with a narrow nose, lack of prognathism and moderate stature. This element has been isolated in the living in all parts of Polynesia and is Caucasoid in appearance. It is probably a very primitive caucasoid type. If we are to call any type Polynesian it would almost seem that this type had the best claim to that title.

If we turn next to Easter Island, we find a long head combined with a broad nose and a moderate tendency to prognathism (projecting face). This element has long been recognized and has been described as Melanesian or an Oceanic negro. So far I have been unable to isolate this element in large numbers in the living population and consequently cannot state how closely it resembles the Melanesians. In the skeletal remains this type is fairly common in New Zealand, Easter Island, and to a lesser degree in Central Polynesia. It cannot rightly be called Polynesian, of course, since it is more important elsewhere.

In Tonga, Samoa, Tahiti, etc., we find an extremely short head combined with a relatively narrow nose and high stature. This element is the one generally taken as typical of Polynesia and by some anthropologists has been designated as the true Polynesian. I have already indicated above the objections to this. They are Polynesians in the same sense perhaps that the Anglo-Saxon inhabitants of the United States are Americans. Some authors have appreciated this fact and have called them Indonesians. Indonesian is a term generally applied to the Caucasoid peoples of Malaysia regardless of the fact that there are undoubtedly two Caucasoid elements in Malaysia, a long-headed one similar to the one I have called Polynesian, and a short-headed one related to the type under discussion. The principal objections to this use of the term Indonesian are the facts that it has been applied to two Caucasoid types, neither of which is important numerically in Indonesia, and that it has also been applied to other types more characteristic of Indonesia. This type has also been designated as Proto-Armenoid and Alpine.

In Hawaii, in the Marquesas and to a lesser degree elsewhere in Polynesia, we find a short head combined with a broad nose, low

stature and a dark skin. Some authors have described this as Negrito, but it is not Negrito in the generally accepted conception of that term. I have designated it as Indonesian chiefly because it is or has been a very important element in southeastern Asia and the Malay Archipelago. It should be pointed out, however, that I am using the term Indonesian in a sense entirely different from that in which Logan first used it. I am not the first to do this since Giuffrida-Ruggeri and others have previously used the term to describe other types than those designated by Logan.

The essential thing to note at present is that the population of Polynesia is composed of at least four different and distinct elements. Two of these are Caucasoid in appearance and quite generally distributed throughout Polynesia. One other is generally considered Negroid or Melanesian. A fourth is of somewhat doubtful affiliation, but shows several Negroid characteristics as well as some Mongoloid characters. These types combine in various proportions to make up the populations of the different island groups. Different islands in the same groups contain these elements in different proportions.

Before these types can be satisfactorily named it is necessary to have more information on their specific racial relationship. This is true outside of Polynesia as well. It is pretty generally recognized in anthropology that we have more names than physical types. The same type in three different parts of the world is often designated by as many different names. Our current anthropological classifications of man are a scramble of geography and anatomy. Until we untangle some of these highly complex mixed populations and make more progress on detailed relationships, we cannot work out any lasting classification. If it can be demonstrated beyond doubt that the tall short-headed, narrow nosed type in Polynesia is identical with the European and Asiatic Alpine, then it should be designated as a Polynesian branch of the Alpine Race. We should not have three terms, such as Alpine, Indonesian and Polynesian to designate the same type in different parts of the world.

The question will of course be raised, "Is it certain that these types are not local types differentiated by isolation on the different

islands?" This seemed at first plausible to me for it was something of a strain to my credulity to believe that some of these remote island groups had been reached by man not only once but in a few instances as many as four separate times. But when I found each and every one of these types outside of Polynesia I was forced to abandon the idea of local differentiation. No one of these four types is confined wholly to Polynesia. The distribution of these types both within and without Polynesia argues strongly against a local origin of these types in Polynesia.

Aside from the almost certain fact that the tall short-headed narrow-nosed element is a fairly recent arrival in Polynesia, the sequence of these types and their order of arrival in the various islands is not clear at the present time.

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THE FIELD OF PALEOLITHIC ART

By GEORGE GRANT MAC CURDY

THE paleolithic artist's range of models included both the animate and the inanimate, but was confined almost wholly to the fauna. Among the fauna, mammals (including man) largely monopolized his attention. Birds and fishes came in for a relatively small share; reptilian representations are practically non-existent, and the same may be said of invertebrates. Plant-like forms are very rare. The inanimate field is represented by claviform and tectiform figures; also by chevrons, frets or grecques, spirals, volutes, wave ornaments, and alphabetiform signs, some of which were derived from animate objects through processes of conventionalization.

In a study of cave art, one is impressed, although not surprised, by the extent to which it reflects the fauna of the time. To the hunter, game animals would naturally loom large on the horizon; that which makes the strongest appeal to the senses is the first to find expression, especially when it happens to be essential to one's existence. Among the animal forms reproduced in paleolithic art, game animals occur much more frequently than any other kinds; the horse far outnumbers the hyena; as does the red deer compared with the lion. To one animal killed because it was dangerous to man (or to the animals on which he fed), there would be scores of game animals captured. Besides, many of the representations are prayers for the increase of the species useful for food and would account in part for the preponderance noted above.

The cave artist not only had predilection for such species as the horse and red deer, but he also seems to have had a preference for the female of the species. In some species the sex distinction is much more pronounced than in others. The stag can be distinguished from the hind by the presence of antlers; figures of the hind far outnumber those of the stag, a fact which is significant. The hind is the symbol of fecundity; the larger the number of

hinds, the greater the increase of the herd. With the horse it is difficult for the artist to differentiate between the sexes; were it not so, we should probably find a like majority of mares over stallions. The same preference for the female sex holds good among representations of *Homo*, no doubt for kindred reasons.

The human form played by no means an insignificant rôle as a model for the cave artist; with but few exceptions, however, the artistic treatment of it was not so successful as was that of the lower animals. The failure of the paleolithic artist in this respect is, no doubt, more apparent than real since both by inclination and training we are more critical of human representations than of any other. Moreover, the cave artist had what seemed to him more weighty reasons for portraying game animals than man. In any event he evinced much skill in emphasizing the characteristic features of a given species, such for example as the peculiar outline of the mammoth with its high cephalic dome, deep nuchal notch, and broad sloping dorsal dome; or the short pointed muzzle of the stag and the finer distinctions between its antlers and those of the reindeer.

The Human Form in Paleolithic Art

Forms distinctly human, including the entire figure or a part thereof, and anthropomorphic forms including masked figures have been found in France, Belgium, Austria, Germany, Russia, Czechoslovakia, Italy, and Spain. France leads with examples from thirty-two stations; Spain is represented by examples from two dozen stations; three stations have been reported from Czechoslovakia, and one each from Austria, Belgium, Germany, Italy, and Russia.

In the cave artist's treatment of the human form, the first things to attract the attention are: (a) the pictorial predominance of the female over the male; (b) the recurrence of a female type suggestive of the Hottentot or Bushman; and (c) the wide geographic and chronologic distribution of this type in Europe. To the figures in the round from Grimaldi, Brassempouy, Lespugue, Willendorf, and Mainz, there should be added the bas-reliefs from Laussel, all conforming to one type. They belong

to various Aurignacian levels and are suggestive rather of a symbolic than of a physical type. The female bust from Mas d'Azil, carved from the incisor of a horse, has long pendent breasts also suggestive of the Hottentot (Magdalenian). Those from Brassempouy have been referred to the Lower Aurignacian, and those from Willendorf, Lespugue, and Laussel to the Upper Aurignacian. A feature common to this group is the summary treatment of the head and extremities, the chief attention being bestowed upon the primary and secondary sex characters. In a few examples where the head is present there is an attempt to suggest hair, or a coiffure, by means of cross-hatching, as in the case of the *figurine à la capuche* (Brassempouy) and the negroid head from Barma Grande (Grimaldi). Still more remarkable is the suggestive way in which kinkiness is represented in the coiffure of the Venus of Willendorf.

Three steatopygic female figurines were discovered in 1922; one was found by Count R. de Saint-Périer in the *grotte des Rideaux* at Lespugue (Haute-Garonne) and the others (lower half only) by Dr. Otto Schmidtgen in loess at Mainz on the Rhine. The first is of ivory and practically complete; it is 14.7 cm. (5.8 in.) high, the largest ivory female figurine known to date. The features are not indicated; the hair, represented by parallel incisions, covers three-fourths of the face and descends at the back to the level of the shoulderblades. The breasts are enormous and the steatopygic characters very pronounced. A new feature is the slenderness of the waist, permitting the arms to hang free from the body at this level.

The human form is often treated in summary fashion. At Gourdan and Raymonden the figures, engraved on bone, are sketchy, quite small, and arranged in processions; the grouping and general treatment from the two localities are strikingly similar. Scarcely better defined is the diminutive human from La Madeleine incised on reindeer horn and represented as carrying a stick on the right shoulder; it is comparable with a series of small human figures incised on a rib, each with a staff on the shoulder, from the *Abri du Château* at Les Eyzies; and with the hunting scene (?) on reindeer horn from Laugerie-Basse, generally referred to as the *chasse à l'aurochs*.

In addition to a number of masked figures which are obviously human, there are a number of examples, chiefly engravings, in which the human form is but vaguely indicated; they may best be referred to as anthropomorphic figures. Representations of this kind have been found at Combarelles, Cro-Magnon, Font-de-Gaume, Gourdan, Laugerie-Basse, Marsoulas, and Mas d'Azil (in France); at Altamira and Hornos de la Peña (in northern Spain).

Human (and animal) paleolithic representations are, as a rule, of the entire figure. Figures of an arm, leg, phallus, or vulva are rare. On the other hand, and this is the exception which proves the rule, figures of the human hand are abundant, especially in the Pyrenean and Cantabrian regions. They have been reported from seven caves in France (Gargas, Bedeilhac, Trois-Frères, Les Eyzies Font-de-Gaume, Beyssac, David, and Blanchard at Sergeac) and from four in Spain (Altamira, Castillo, Santian, and Pretina).

The technique employed in representing the human hand was wholly different from that employed in any other cave art; it was ingenious but not of special artistic merit. Two methods were used to achieve the desired result: the chief one was to press one hand against the cavern wall and with the other apply to coloring matter in the form of a powder over an area sufficient to leave a negative imprint on removal of the hand. The imprint is usually of the left hand for the simple reason that a majority of mankind are (and were even in paleolithic time) right-handed. The other method was by means of color transference. The palm of the hand was dampened, covered with dry powdered paint, and then applied to the damp wall of the cave. As one might be led to expect, a majority of the hands stamped or printed on the walls are right hands; this is additional proof of dextral predominance.

At Santian (Santander) mural figures in red, suggestive of the human hand and lower arm, were reproduced by the ordinary free-hand application of color. They are more or less schematic or stylistic in treatment, grading off into forms suggesting the bird foot; they may have little to do with the positive and negative hand imprints. The latter are the oldest examples of paleolithic

mural art; the technique involved, therefore, represents an initial phase in the evolution of art in general. At Castillo, the hands underlie figures in yellow, and these in turn underlie figures in red. Figures of the human hand are most abundant in Spain at Castillo; in France, at Gargas. Many of the figures at Gargas represent hands that have been mutilated by the removal of one or more joints from one or more fingers.

The following table gives the localities, nature, and age (where determinable) of human representations in paleolithic art:

AUSTRIA			
Willendorf	Portable	Female figurine in stone	Aurignacian
BELGIUM			
Magrite	Portable	Ivory figurine	Aurignacian
CZECHOSLOVAKIA			
Brünn	"	Ivory statuette	Solutrean
Predmost	"	6 female figurines Stylistic engr. of female figure	Aurignacian
FRANCE			
Aurensan	"	*Homo* engr. on slate	
Bedeilhac	Mural	Human hand	
Beyssac	"	Negative figure of hand	
Brassempouy	Portable	Ivory figurines	Aurignacian
La Colombière	"	Figures engraved on bone	" or Magdalenian
Combarelles	Mural	Human leg; anthropomorphic	
Cro-Magnon	Portable	Woman full-length engraved on bone	Aurignacian
David	Mural	Engraved figures of men (ithyphallic) followed by women with pendant breasts; human hands in red or black	
Les Eglises	"	Human figure under tectiform	
Les Eyzies (Abri du Château)	Portable	Human figures engraved on rib; also hands	Magdalenian
Ferrassie	Portable	Vulva	Aurignacian
Font-de-Gaume	Mural	Human profile (?); hands	
Gargas	"	Human hands	Aurignacian
Gorge d'Enfer	Portable	Human phallus (double)	
Gourdan	"	Anthropomorphic	
Laugerie-Basse	"	"Venus impudique," female with reindeer, hunter with bison	
Laussel	"	Four female figures and one male in low relief on stone	Aurignacian
Lespugue	"	Ivory female figurine	"
Lourdes	"	Human leg (?); a sorcerer	
La Madeleine	"	Human figure and arm	Magdalenian
Marcamps	"	Human head (?), of reindeer horn	
Marsoulas	Mural	Anthropomorphic	
Mas d'Azil	Portable	Anthropomorphic figures on bone; female bust	Magdalenian
Montespan		Vulva	Aurignacian
Portel	Mural	Human figure	

Raymonden	Portable	*Homo* on bone	Magdalenian
Rivière-de-Tulle	"	Anthropom. engr. on reindeer bone	
Les Roches (Blanchard)	"	Engraving of vulva on stone; phallus carved from bison horn	Aurignacian
Terme Pialat	"	Relief figure of *Homo* on limestone	"
Teyjat	"	Phallus, masked figures	
Trois-Frères	Mural	Human hand imprints; sorcerer	
La Vache	"	Human stylistic forms	

GERMANY

Mainz	Portable	Lower half of two female statuettes	Aurignacian

ITALY

Baoussé-Roussé	"	6 figurines of crystalline talc, five of them female, also a negroid head	

RUSSIA

Mézine	"	Stylistic human figures in the round	Aurignacian

SPAIN

Albarracin	Mural	Paintings of *Homo*	
Alpera	"	" of hunters and women	
Altamira	"	Anthropomorphic figures	
El Arco	"	*Homo*	
Batuecas (2 stations)	"	Figures in color	Azilian probably
Carasoles del Bosque	"	Paintings of men	
Castillo	"	" of human hand	
Charco del Agua Amargo	Mural	Paintings of females	
Chiquita de los Trenta	"	" " men	
Cogul	"	" " " and women	
Cortijo de los Treinta	"	" " women	
Garcibuey	"	" " humans	
Hornos de la Peña	"	Anthropomorphic	
Jimena	"	"	
Lavaderos de Tello	"	Stylistic men	
Minateda	"	" figures in color	
Monte Arabi	"	Figures of men	
Peña	"	Stylistic figures in color	
Peñon de la Tabla de Pochico	"	" "	Neolithic (probably)
Pileta	"	*Homo* in color	
San Garcia	"	" " clay	
Santian	"	Human hand	
Tajo de las Figuras	"	*Homo*	
Tortosillas	"	"	

MAMMALIA

Ever since man began his omnivorous career, mammals have probably furnished his chief supply of animal food; this is obviously true of the whole paleolithic period, especially of its last four epochs. We know which animals the Mousterians fed upon from their kitchen refuse. During the upper paleolithic period, we have two lines of evidence: the kitchen refuse and the animal

representations in art; both point to one and the same conclusion. The relative frequency of a given genus as a model for the artist varies approximately in direct ratio with the frequency with which the bones of that particular genus occur in the kitchen refuse. Both hunter and artist no doubt drew most heavily on the animal that was most abundant, other things being equal. Some animals are caught more easily than others by a hunter limited to primitive means. The horse and red deer were both fleet of foot, but either was a prize well worthy of special effort. It is surprising that the mammoth should have been sought so extensively as food and that the hare should not have played a more important rôle; the latter is scarcely represented in the art of the period. The horse was easily the favorite in France; in Spain it was second, conceding first place to the red deer.[1] Taking Europe as a whole, the horse predominates; and is followed in turn by the red deer, bison, wild goat, Bovidae (chiefly *Bos primigenius*), reindeer, and Cervidae. The original home of the horse was North America. Remains of the true horse (*Equus stenonis*) are found in the Pliocene and early Pleistocene deposits of Europe. One finds in the upper paleolithic deposits remains of several varieties of horse not unlike the modern Celtic or Arab type, the Nordic or forest type, and the steppe type (*E. przewalski*), also the wild ass or kiang (*E. hemionus*). These varieties are even recognizable in the art of the upper paleolithic period.

By tabulating the occurrence of animal forms represented in art from eight of the principal stations in France, the horse is found to predominate in six, the reindeer in one, and the bison in one. The stations in question are: Bruniquel, Combarelles, Font-de-Gaume, Laugerie-Basse, Lorthet, Lourdes, La Madeleine, and Mas d'Azil. The horse, reindeer, bison, Bovidae (chiefly *Bos primigenius*), and mammoth are, in the order mentioned, the most frequently represented. The horse, reindeer, and Bovidae (not including bison) occur in all eight stations; the bison is lacking in one (Lorthet) and Mammoth in three (Lorthet, Lourdes, and Mas d'Azil).

[1] Red deer (*Cervus claphus*) was common during the Aurignacian; became rare in the Solutrean and Lower Magdalenian; was abundant in the Upper Magdalenian; and finally supplanted the reindeer.

At Bruniquel the animal representations in order of frequency are: Equidae (chiefly *Equus caballus*), reindeer, wild goat, *Bos*, Capridae chamois, bison, red deer, mammoth, musk-ox, and *Homo*.

The order of frequency at Les Combarelles is: Equidae, mammoth, antelope, Bovidae, reindeer, wild goat, bison, Capridae, cave bear, *Felis*, and wolf.

The bison easily leads at Font-de-Gaume and is followed by: Equidae, mammoth, reindeer, *Bos*, Capridae, rhinoceros, *Felis*, cave bear, *Homo*, and wolf.

The reindeer leads at Laugerie-Basse, being followed by: Equidae, fish, Bovidae, bison, red deer, wild goat, *Cervus*, *Homo*, *Felis*, and otter.

At Lorthet the order of frequency is: Equidae, Cervidae, fish, red deer, Bovidae, roebuck, glutton, and reindeer.

The horse is first at Lourdes with Bovidae a fairly close second; then follow in their turn, the bison, bird, reindeer, red deer, cave bear, Cervidae, fish, and rhinoceros.

At La Madeleine the horse again leads; the reindeer, a close second, is followed by the red deer, Bovidae, Cervidae, ruminants, bison, *Felis*, *Homo*, and mammoth.

The eighth station, Mas d'Azil, concedes first place to Equidae by a wide margin; after the horse there come in turn: reindeer, wild goat, Bovidae, fish, bison, *Bos*, bird, red deer, antelope, Cervidae, anthropomorphic figures, *Homo*, ruminant, and wild boar.

A somewhat different faunal composition is reflected in the paleolithic art of Spain, even though the field be limited to the region north of the Cantabrian mountains. The horse concedes first place to the red deer, with the bison a close third. *Elephas* is rare and the reindeer disappears altogether. The animals most frequently represented are, in the order given, red deer, Equidae, bison, and Bovidae (chiefly *Bos*). The foregoing is based on the stations of Altamira, Castillo, Hornos de la Peña, and La Pasiega.

The order of frequency in each is:

(a) Altamira. Bison, horse, red deer, Capridae, wild boar, chamois, Cervidae, *Elephas*, and wild goat.

(b) Castillo. Red deer (mostly female), bison, horse, *Bos*, wild goat, Capridae, chamois, and *Elephas*.

(c) Hornos de la Peña. Horse, bison, *Bos*, wild goat, and red deer.

(d) La Pasiega. Red deer (mostly female), horse, *Bos*, bison, wild goat, chamois, and *Elephas*.

The mammals occurring in cave art are listed in the following tables which serve as indices to the relative frequency and geographic distribution of art works dealing with mammalian forms.[2]

Badger(?)

France. Gourdan

Bison

France. Bedeilhac, Bernifal, Bout-du-Monde, Bruniquel, Cap Blanc, Champs-Blancs, La Colombière, Combarelles, La Croze-à-Gontran, David, Les Eglises, Les Eyzies, Font-de-Gaume, Gargas, La Grèze, Isturitz Laugerie-Basse, Limeuil, Lourdes, La Madeleine, Marcenac, Marsoulas, Mas d'Azil, Montespan, La Mouthe, Nancy, Niaux, L'Ombrive, Pair-non-Pair, Le Placard, Le Portel, Raymonden, Spugo, Teyjat, Trois-Frères, Tuc d'Audoubert

Spain. Las Aguas de Novales, Altamira, El Buxu, Castillo, Cogul, Hornos de la Peña, La Pasiega, La Pileta, Pindal, Venta de la Perra

Bovidae[3] (chiefly *Bos*)

Czechoslovakia. Kostelik

France. Arcy, Bruniquel, Les Combarelles, La Croze-à-Gontran, Enlène, Les Eyzies, Font-de-Gaume, Gourdan, Laugerie-Basse, Limeuil, Lorthet, Lourdes, La Madeleine, Mas d'Azil, Marsoulas, Le Placard, La Vache

Spain. Albarracin, Alpera, Altamira, El Arco, Las Batuecas, Calapatá, Castillo, La Clotilde, Cogul, Covalanas, El Charco del Agua Amarga, Hornos de la Peña, La Loja, Mineteda, Monte Arabi, La Pasiega, La Pileta

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[2] The stations are arranged alphabetically under the various countries and each station stands for one or many representations of the animal in question.

[3] In some cases the execution of the work is such as to make it impossible to determine which genus or species of a family was intended; in such, the family name is employed.

Canidae

France. Gourdan, Laugerie-Basse, Lorthet, Mas d'Azil

Spain. Alpera

Canis

Spain. Alpera, Minateda

Capridae

France. Bruniquel, Font-de-Gaume, Massat

Spain. Altamira, Castillo

Cervidae

France. Ammonite, La Colombière, Combarelles, Les Eyzies, Fontarnaud, Gourdan, Isturitz, Laugerie-Basse, Lorthet, Lourdes, La Madeleine, Mas d'Azil, Massat, Le Placard, Raymonden, Les Roches, Saint-Mihiel, Soucy, Tuc d'Audoubert

Spain. Altamira, El Arco, El Buxu, Cogul, El Charco del Agua Amarga, Minateda, Monte Arabi, El Tajo de las Figuras

Chamois

France. Bruniquel, Les Cambous, Goudan

Spain. Altamira, Castillo, La Pasiega, Tortosillas

Elephas[4] (chiefly mammoth)

France. Bernifal, Bruniquel, Chabot, Combarelles, La Croze-à-Gontran, David, Le Figuier, Font-de-Gaume, Gargas, Laugerie-Basse, La Madeleine, Montespan, La Mouthe, Pair-non-Pair, Raymonden, Les Roches, Saint-Mihiel, Trois-Frères

Germany. Klause

Spain. Altamira, Castillo, La Pasiega, Pindal

Elk (or moose)

France. Gourdan, Les Rebières

Spain. Alpera

Equidae[5]

France. David, Isturitz, Mas d'Azil, Montespan(ass), Les Roches, Soucy, Trois-Frères

Switzerland. Schweizersbild

Felis

France. Arudy, Bruniquel, La Colombière, Les Combarelles,

[4] *Elephas antiquus* is probably represented in cave art at Castillo, Spain.

[5] Most of the equidian figures represent *E. caballus;* a few, the wild ass. (*E. hemionus*).

Font-de-Gaume, Gourdan, Isturitz, Laugerie-Basse, La Madeleine, Montespan, Trois-Frères

Fox

France. Arudy, Les Combarelles, Le Placard

Glutton

France. Laugerie-Haute, Lorthet

Hare

France. Isturitz

Horse

England. Robin Hood, Sherborne

France. Arudy, Aurensan, Batie, Bernifal, Bout-du-Monde, Brassempouy, Bruniquel, Calévie, Cap Blanc, Chaffaud, La Colombière, Comarque, Combarelles, La Crouzade, La Croze-à-Gontran, Enlène, Les Eyzies, La Ferrassie, Font-de-Gaume, Gargas, Gourdan, Laugerie-Basse, Laugerie-Haute, Laussel, Lespugue, Limeuil, Lorthet, Lourdes, La Madeleine, Marcenac, Marsoulas, Mas d'Azil, Montespan, La Mouthe, Murat, Nancy, Neschers, Niaux, Le Placard, Pont-du-Gard, La Pépue, Le Portel, Raymonden, Sainte Eulalie, Saint-Marcel, Saint-Mihiel, Sordes, Spugo, Teyjat, Trois-Frères, Tuc d'Audoubert

Germany. Obercassel

Italy. Romanelli

Spain. Albarracin, Alpera, Altamira, El Buxu, Castillo, Covalanas, Doña Trinidad, La Haza, Hornos de la Peña, Minateda, Monte Arabi, La Paloma, La Pasiega, La Pileta, Pindal, San Antonio, San Garcia, La Sotarriza, Valle

Switzerland. Kesslerloch

Hyena

France. Laussel, La Madeleine, Montespan

Lynx

Spain. Las Batuecas

Moose (see Elk)

Musk Ox

France. Bruniquel, La Colombière, Laugerie-Haute

Switzerland. Kesslerloch

Otter

France. Laugerie-Basse

Red Deer

France. Bellet, Bout-du-Monde, Bruniquel, Chaffaud, La Chaise, Les Eyzies, Gourdan, Les Hoteaux, Laugerie-Basse, Laugerie-Haute, Laussel, Limeuil, Lorthet, Lourdes, La Madeleine, Marcenac, Mas d'Azil, Montespan, Montfort, Murat, Pair-non-Pair, Le Placard, Planche-Torte, Le Portel, Le Pouzat, Raymonden, Teyjat, Trois-Frères

Spain. Albarracin, Alpera, Altamira, Las Batuecas, El Buxu, Calapatá, Chiquita de los Trenta, Cortijo de los Treinta, Covalanas, Castillo, El Charco del Agua Amarga, Doña Trinidad, Estrecho de Santonje, Hornos de la Peña, Lavaderos de Tello, Minateda, Monte Arabi, La Paloma, La Pasiega, La Pileta, Pindal, Salitre, Tortosillas, Valle

Reindeer

France. Bout-du-Monde, Bruniquel, La Colombière, Combarelles, Corgnac, Crozo de Gentillo, Les Eyzies, Font-de-Gaume, Gourdan, Laugerie-Basse, Limeuil, Livèyre, Lorthet, Lourdes, La Madeleine, Mas d'Azil, Massat, Montespan, La Mouthe, Le Portel, Sainte-Eulalie, Saint-Marcel, Solutré, Soucy, Teyjat, Trois-Frères, Tuc d'Audoubert

Germany. Schussenquelle

Spain. Minateda

Switzerland. Kesslerloch

Rhinoceros

France. Arcy, La Colombière, La Ferrassie, Font-de-Gaume, Gourdan, Lourdes, Le Placard, Trois-Frères

Spain. Minateda

Switzerland. Kesslerloch

Rodent

Germany. Obercassel

Roebuck

France. Lorthet

Ruminant

France. La Madeleine, Mas d'Azil, Pair-non-Pair, La Pépue

Saiga Antelope

France. Gourdan, Lacave, Laugerie-Haute, Mas d'Azil

Spain. Minateda

Seal

France. Brassempouy, Gourdan, Montgaudier, Sordes, Teyjat, La Vache

Ursus (chiefly cave bear)

France. La Colombière, Comarque, Combarelles, David, Font-de-Gaume, Isturitz, Lespugue, Lourdes, Massat, Montespan, Teyjat, Trois-Frères

Spain. Venta de la Perra

Wild Boar

France. Mas d'Azil

Spain. Altamira, Charco del Agua Amarga, Minateda

Wild Goat

France. Arudy, Bruniquel, Combarelles, La Croze-à-Gontran, Les Eglises, Les Eyzies, La Ferrassie, Gourdan, Laugerie-Basse, Limeuil, Livèyre, Lorthet, Marcenac, Marsoulas, Mas d'Azil, Montespan, La Mouthe, Nancy, Niaux, Planche-Torte, Trois-Frères, Le Veyrier

Spain. Alpera, Las Batuecas, El Buxu, Calapatá, Cortijo de los Treinta, Coto de la Zarza, Castillo, Las Grajas, Hornos de la Peña, Minateda, Monte Arabi, La Pasiega, La Pileta, El Prado del Azogue, Quintanal

Wild sheep

France. La Colombière

Wolf

France. Bruniquel, Les Combarelles, Font-de-Gaume, Gourdan, Lourdes

BIRDS

Representations of the bird are relatively rare, but occur in both portable and mural art. They include figures in the round, in low relief, and engravings; they adorn batons as well as dart-throwers and at least two examples of mural art have been noted. Among the figures that can be identified with a fair degree of certainty, one finds the crane, duck, goose, grouse, owl, penguin, partridge, and swan (practically all edible forms).

A bird figure from the loess station of Andernach (Rhine) illustrates, as well perhaps as any other example of portable art, the ability of the artist to improvise, to seize upon resemblances,

and make of the imagination a labor-saving device. It is carved from the basal portion of a reindeer horn in which the sculptor saw the head, beak, and eyes of a bird; the wings and tail were added by means of a few incised lines on the shaft which formed the body of the bird. Another notable figure of a bird in the round ornaments a dart-thrower of reindeer horn found by Piette at Mas d'Azil. The fragmentary specimen has been restored by Breuil, who sees in the figure a grouse. The crochet of a dart-thrower of reindeer horn from Raymonden is carved so as to represent the head and beak of a bird.

The bird has been found in cave art at nineteen stations:

France. Arudy, Bruniquel, Fontarnaud, Gargas, Gourdan, Isturitz, Lourdes, Mas d'Azil, Raymonden, Soucy, Teyjat, Trois-Frères

Germany. Andernach

Italy. Romanelli

Russia. Mézine

Spain. Minateda, Monte Arabi, El Pendo, El Tajo de las Figuras

Fish

The fish occurs more frequently than the bird in cave art. It is represented in some two dozen stations in France alone, but occurs somewhat rarely outside. Among the kinds that figure in cave art the carp (?), flounder, pike, plaice (or brill), salmon, Spanish mackerel, and trout have been identified.

There are some fifty paleolithic stations in Europe in which harpoons of reindeer horn have been found, all dating from the Magdalenian epoch. The harpoon may well have served in fishing, especially for salmon and pike. In about half of the stations at which figures of the fish have been reported, harpoons also occur, namely at: Arlay, Arudy, Bruniquel, Les Cambous, Goyet, Isturitz, Kostelik, Langerie-Basse, Lespugue, Lorthet, La Madeleine, Mas d'Azil, Sordes, and Teyjat. At Teyjat, the harpoons and the engraving of a fish came from the same Magdalenian level. Among the remaining stations with representations of the fish, some were not inhabited during the harpoon-making epoch (Upper Magdalenian). In the Piette collection from Mas d'Azil,

is the figure of a fish carved from reindeer horn and represented as having been pierced by a harpoon.

The hook was also employed in fishing. Many examples of a primitive fish-hook made of a straight sliver of bone or reindeer horn, 3 or 4 cm. (1—1.5 in.) long and pointed at both ends were found at Bruniquel; other examples, including barbed hooks, are reported from some of the caves and rock shelters of the Dordogne. The engraving of a fish found by Labrie at Fontarnaud is of unusual interest because the fish is represented as biting at what appears to be intended for a barbed hook.

In certain figures of the fish the surface is so incised as to resemble the vertebral column and spines or ribs; this is true of the specimen recently found by E. Passemard at Isturitz, and the one found by Count de Saint-Périer in the grotte des Boeufs at Lespugue. An even greater stretch of phantasy is to be noted in one (now in the Yale collection) of the fish figures from the cave of Rey. The body and tail of the fish are cut from a ruminant rib split in the plane of its maximum dimensions. The artist imagines the split rib to represent the split body of the fish and by means of incised lines makes the framework of the fish to show on the split side only.

Perforated fish vertebrae were often used as beads during the cave-art period. In one of the Mentone caves, Rivière found a paleolithic necklace composed of twenty-four salmon vertebrae. The remarkable necklace found by Verneau with one of the skeletons (the young man) composing the triple burial at Barma Grande cave (Grimaldi), was made up of a happy combination of canine teeth of the deer, univalve shells (*Nassa neritea*), and fish vertebrae. One of the batons of reindeer horn found by Lartet and Christy at La Madeleine has a marginal decoration closely resembling a series of fish vertebrae in their anatomic relation.

Figures of the fish have been found at thirty-one stations and in at least five European countries as follows:

Belgium. Goyet. Trout engraved on a baton of reindeer horn; found by Dupont.

Czechoslovakia. Kostelik. Ramus of the lower jaw of a horse carved into the form of a fish; found by M. Kříž.

France. (1) Arlay. Engraving reported by Girardot

(2) Arudy. Fish carved from ivory and one engraved on reindeer horn; found by F. Mascaraux in the cave of Saint-Michel

(3) Brassempouy. Engraving found by Piette

(4) Bruniquel. Engraving on bone from the Château rock shelter; found by Cartailhac

(5) Les Cambous. Tail of a fish engraved on reindeer horn; published by Bergougnoux

(6) Chaffaud. Fish carved in reindeer horn with contours cut away; published by G. Chauvet (Gaillard de la Dionnerie collection at Poitiers)

(7) La Croze de Tayac. Engraving on an antler of Cervidae; published by Rivière

(8) David. Mural figure, probably that of a pike.

(9) Fontarnaud. Engraving on reindeer horn (Labrie collection)

(10) Gorge d'Enfer. Large figure in relief of a salmon on the ceiling of the grotte du Poisson; found in 1912 by Maurice Marsan

(11) Gourdan. Pike engraved on reindeer horn; a fish tail carved in the round from the palmate portion of a reindeer horn and provided with a hole for suspension as a pendant or charm; both published by Piette

(12) Isturitz. Salmon (or trout) engraved on a baton; found by Passemard

(13) Laugerie-Basse. Pike engraved on a fragment of reindeer lower jaw; some sixteen other examples engraved on bone and reindeer horn, one of which (probably salmon) is associated with the figure of an otter

(14) Lespugue. Fine figure of the flounder, of bone with contours cut away; recently discovered by the Count de Saint-Périer in Magdalenian deposits of the grotte des Boeufs; engraving of fish on bone from the grotte des Harpons

(15) Lorthet. Several salmon in juxtaposition with two stags and a hind, engraved on a baton of reindeer horn with

the artist's mark (two lozenge-shaped signs) affixed; figure of flat bone with the contours cut away, Piette collection

(16) Lourdes. Figure made from flat bone with contours cut away; Piette coll.

(17) La Madeleine. Carp (?) engraved on both sides of a section of reindeer horn; figures engraved on batons of reindeer horn; marginal decoration resembling a series of fish vertebrae in their anatomic relation, on a baton; published by Lartet and Christy

(18) Mas d'Azil. Fish carved from reindeer horn and represented as having been pierced by a harpoon; two other figures on bone and one on reindeer horn (one of these was evidently used as a dart thrower, a fin forming the crochet) Piette collection

(19) Niaux. Two figures of the trout incised in the compact clay on the cavern floor of the diverticulum at the entrance to the *salon noir*. Published by Cartailhac and Breuil

(20) Placard. Javelin points decorated with stylistic figures of the fish, one of which resembles the flounder (eyes not indicated). Published by Breuil

(21) Pont-du-Gard. Figures of the fish and horse on bone; found by Cazalis de Fondouce in the cave of Salpêtrière

(22) Rey. Two sculptured figures, probably salmon, each carved from a ruminant rib split in the plane of its maximum dimensions. In one the entire fish is represented with a high degree of artistic skill; in the other, the body and tail only are represented.

(23) Sordes. Engraved figure of a pike on a perforated canine tooth of the cave bear; found by Lartet and Duparc in the cave of Duruthy

(24) Teyjat. Engraved figure of a fish on a spatulate bone implement from the cavern on La Mairie; published by Capitan, Breuil, Bourrinet, and Peyrony

(25) Trois-Frères. Figure of a fish on bone; found by Count Begouen

Serpentiform figures, probably of the eel (or the snake), have

been reported from Gourdan, Lorthet, La Madeleine, Montgaudier, and Teyjat.

Poland. Wierzchow. Engraving of a fish on the rib of a reindeer found by Zavisza

Spain. (1) Batuecas, Las. Mural painting of the fish, probably of Azilian age; found by Breuil

(2) Minateda. Mural figures of the fish; reported by Breuil

(3) La Pileta. Several mural engravings of the fish, one of which is 1.5 m. (4.9 ft.) long; represents a marine fish, probably a plaice or brill; published by Breuil, Obermaier, and Verner

Invertebrates

The invertebrate world does not seem to have appealed to the paleolithic artist. Invertebrates did not serve the needs of man to any appreciable extent; when wanted, they could be had without resort to magic. Five examples have been reported: (1) the facsimile of a *Cypraea* shell carved from ivory with a large loop for suspension, from Pair-non-Pair (middle Aurignacian), (2) an ivory beetle (Coleopter) of Magdalenian age from Cap Blanc, (3) an insect (Coleopter) in lignite from Arcy, (4) a lady bug from Laugerie-Basse, and (5) an insect (Coleopter) in ivory from the grotte du Coléoptère, Belgium (Magdalenian).

Flora

As was the case with invertebrates, and perhaps for similar reasons, the plant world was of little concern to the cave artist. Figures that might be construed as plant representatives have been found at only a few stations, including Arcy (grotte du Trilobite), Gaubert, Gourdan, Lourdes, Marsoulas (?), Mas d'Azil, and Le Veyrier.

The Inanimate in Paleolithic Art

Portrayal of animal forms was the cave artist's chief concern, with a decided predilection for vertebrates and among the vertebrates, Mammalia easily ranked first. There is but a faint pictorial reminder of the cave man's contact with the invertebrate life about him; the same is true so far as the plant world is concerned.

Inanimate objects fared somewhat better; among these are classed decorative motives that might have been derived from animal forms through processes of conventionalization, such as chevrons, frets or grecques, spirals, volutes, etc.

Alphabetiform Signs. Before the close of the Magdalenian Epoch symbolism began to play an important rôle in Paleolithic art. Piette believed these Magdalenian symbols to be figures or images employed as signs of objects; therefore, they represent words. One of the early Paleolithic symbols is the dotted circle, supposed to be a sun symbol (Gourdan, Lourdes); it reappears as an Egyptian hieroglyph, also on dolmens and menhirs, on Bronze-Age funerary urns, and ornaments of the Iron Age. The circle without the dot passed into ancient alphabets, and from them into modern alphabets. The lozenge was employed as an artist's signature at Lorthet.

Piette distinguished two successive systems of writing in the Magdalenian—the hieroglyphic and the cursive; he believed the latter to be derived from the former, but admitted that since symbols are creatures of convention, they may from the beginning have been figures formed by geometric lines instead of being simplified images.

Alphabetiform symbols which have been interpreted as proof of the existence of primitive writing during the Magdalenian Epoch have been found at a number of stations in France, including Crozo de Gentillo, Gourdan, Lorthet, La Madeleine, Mas d'Azil, and Placard; they have also been found in Spain at La Pasiega.

Chevrons, Frets, Spirals, Volutes, Wave Ornaments. As previously stated, ornamental motives may be derived from realistic originals. To what extent this is true of Paleolithic chevrons, spirals, sigmoids, volutes, etc., it would be difficult to say. They are, no doubt, in a measure the result of a tendency to conventionalize, to standardize, to symbolize after the tide of realism had begun to ebb. The chevron is employed at a number of stations including Mas d'Azil, Sordes, and Teyjat in France, and Wildscheuer in Germany. Spirals, sigmoids, and volutes identical in pattern and technique have been found at Arudy, Lespugue, and Lourdes in France; and at Hornos de la Peña in

Spain. A wave ornament incised on a large rib found in Solutrean deposits at Předmost is unique so far as the author's knowledge goes. The fret or grecque is developed to an unexpected degree in the loess station of Mézine. The patterns, incised on ivory, were reported by Volkov as belonging to the Upper Aurignacian; but Tchikalenko believes them to date from near the close of the Magdalenian Epoch.

Claviform Signs and Darts. Club-shaped figures, both engraved and in colors, so far as the author can recall, are found only on cavern walls in a number of French and Spanish stations. They are associated for the most part with animal figures and are, no doubt, of magic import. Examples occur in three important caverns of Ariège: Niaux, Trois-Frères, and Tuc d'Audoubert. In the latter, a claviform is incised across the head of a reindeer engraved on the cavern wall. The claviforms from Niaux and Trois-Frères are in color and not directly associated with animal figures. At Combarelles a figure that admits of being interpreted as a claviform is incised longitudinally on the head of a horse.

The claviform is found in southern Spain at Altamira and Pindal. Beneath a wounded bison at Pindal are six club-shaped figures in color, all oriented in the same manner. The original bludgeons for which these stand were obviously of wood since none have been preserved; they were about 1 m. (39.4 in.) in length if the artist drew them and the accompanying bison to the same scale.

That the paleolithic artist did not ignore the matter of scale when executing a group is seen in even a cursory examination of the repertory of cave art. Many examples might be cited in proof of it: the mother and her young, the male and female of the same species; a herd of a given kind, the hunter and the animal hunted, etc. It goes without saying that figures in accidental juxtaposition, executed at different times and by different artists, would not conform to the same scale. Again, cases might arise where it would not be expedient to lay much stress on observing this rule. A case in point is apparently afforded by a decorated bone pendant from Raymonden with an engraved scene depicting a hunter's

feast. The dead, dismembered, partially consumed bison rightfully occupies the center of the stage and is accordingly drawn to a larger scale than are the feasting hunters arranged in two rows, one on each side of the carcass. The position of the forelegs indicates that they have already been disjointed and the vertebral column is laid bare. The pendant also served as a hunter's tally.

The subject of claviform figures cannot be dismissed without reference to the cavern of Altamira, where more than a dozen claviforms are painted on the famous ceiling, some of them encroaching upon the space occupied by the legs of the large figure of the hind.

Darts dangling from the sides of wounded animals are often depicted; the best known examples are from Niaux and Tuc d'Audoubert in Ariège, and Pindal in northern Spain. Some of the clay statues and figures in high relief of various animals from the newly discovered cavern of Montespan (Haute-Garonne) are literally riddled with punctures representing dart wounds. The figure of a harpoon incised on a pebble has been found at Gourdan (Haute-Garonne).

Tectiforms. Tent-shaped figures incised and in color, have been found on cavern walls of both France and Spain. They are often placed directly on animal figures as if to imply a direct or desired association. Two of these tectiforms resembling a front view of two over-lapping tents without sides, are incised on the figure of a mammoth at Bernifal. Two tectiforms of more elaborate form including sides and openings, are painted on the body of a mammoth at Font-de-Gaume. Two other similar figures are painted on the body of a reindeer at Font-de-Gaume, where a total of nineteen tectiforms has been listed. Other French stations in which tectiforms have been found include: Les Combarelles, La Mouthe, Les Eglises, Trois-Frères, and Marsoulas.

Tectiform signs also occur in both northern and southern Spain: Bolao, Castillo, La Pasiega, and La Pileta.

The term tectiform is well chosen because of the resemblance of the figures to primitive dwellings and because of the probability that they actually represent the kind of temporary abode employed by the upper paleolithic races. Man of that period

dwelt in caves and rock shelters wherever they were to be found and if habitable; elsewhere he had recourse to artificial and more or less temporary shelters. The tectiforms reproduce in a remarkable manner the simple shelters, tents, and huts in use today among primitive and nomadic races in various parts of the world.

Materials Employed in Paleolithic Art

Artists of the historic period have a wide range of materials to serve as a vehicle of art expression,—chiefly canvas, paper, textiles, plaster, the various metals, pottery, porcelain, glass, skins, clay, bone, horn, ivory, wood, stone, and coloring matter. The first seven of these were certainly unknown to the paleolithic artist who was limited to what he found ready to hand in nature. This limitation, together with the paucity of utensils at his command, was a serious handicap to the artist of the Old Stone Age. It is known from the record, that in portable art he made use of stone, bone, ivory, reindeer horn, and stag horn, the chief vehicles being bone and stone. Bones of both mammals and birds were freely employed, usually without any previous preparation. Various kinds of stone were pressed into service, some of them quite hard, others soft. The list includes: crystalline talc, lignite, schist, gritstone, slate, and several varieties of limestone. Sometimes pebbles were employed.

All these ready-to-hand materials are of a more or less nonperishable nature; but it would not be logical to assume that such were the only materials employed. Wood is well adapted as a medium of art expression; it was available and the cave artist had tools well adapted for working it. Wood is widely used for art purposes by primitive living races; there is every reason, therefore, to assume that the paleolithic artist made free use of wood from which, no doubt, many of his ornamented dart-throwers were made. The skins which served for clothing were probably decorated, and the practice of painting the body might also have been in vogue.

Stationary art, which adorns the walls, ceilings, and sometimes even floors of caverns, and the walls of rock shelters, if engraving or fresco, is done in stone and in rare cases, stalagmite; if painted,

ocher and oxide of manganese furnished the coloring matter. In the field of stationary art, clay was used perhaps much more extensively than the record would indicate; for only under exceptionally favorable conditions could one expect figures of untempered and unbaked clay to survive the ravages of time.

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A PRELIMINARY CONSIDERATION OF THE CULTURE AREAS OF AFRICA

By MELVILLE J. HERSKOVITS

THE culture area concept, as advanced by the American anthropologists, and applied to the American Indian cultures, is one which has steadily gained ground and is now largely accepted in the study of these cultures. It is essentially an empirical thing, and one that has proved its usefulness in museum technique, library classification, and for pedagogical purposes. Essentially, it is as follows: it has been found that when a large region, such as a continent, is surveyed for any particular culture trait or group of traits, the distribution of those traits will be such that they can be plotted on a map in continuous areas. At the same time, though the traits differ from one region to another, they may still be recognizable, and, in the main, historical connection can be postulated between those places in which they are found. If, starting with a given culture, one investigate the cultures of the peoples surrounding those possessing this culture, it will be found that there are many resemblances between the material culture, folk-lore, religion, social organization, of the people studied and of those adjacent to them. It will be found, further, that extraneous elements will begin to intrude as one gets farther away from the region in which this culture is strong, until, finally, one comes to a region in which the culture is almost entirely different from the culture originally studied.

Regions in which the culture is more or less of a unit, —i.e., comparable, are thus termed culture areas, and those peoples who have the most exuberant development of the culture are termed people with the typical cultures. As we move in space from the center of the area,—which, it may be noted, is not of necessity the geographical center,—and extraneous cultural elements begin to intrude, we shall come at length to a place where the culture, for the ethnologist, is what may be called weak. This is not to

argue that the culture of such peoples is, in their own inner life, any the less vivid than is that of the peoples having the typical cultures, but it merely means that, from the point of view of the student, there are not so many outstanding traits here as might be found among the latter. The cultures are indeterminate, partaking of the more vivid cultures surrounding them, and presenting few outstanding traits of themselves. Such regions may be termed marginal although it is to be admitted that the use of the term to denote those tribes of meagre culture who live in the outlying regions of the earth may engender a confusion which is not to be desired. No better word, however, has been devised as yet, and "marginal" will be used, therefore, in this paper to denote cultures which lie on the margin of the area of the distribution of the more outstanding cultures. However, it is not only true that tribes at the border of an area are marginal; it sometimes occurs that entire areas have cultures of this type and may be described by the same term. Such a culture, as is generally understood, is that of the Plateau region in North America, where the peoples exhibit few traits which serve to distinguish them sharply from the regions surrounding them; another such is the Mackenzie area.

Since the concept has proved of such usefulness in the study of the cultures of the North American Indians, it was felt that it should be further tested, and an attempt was made last year to apply it to the African civilizations. The East African region from the north of Lake Victoria Nyanza down the East Coast to the Cape was studied intensively, and it was found that, on the basis of the existence of cattle and the tremendous part they play in the lives of the people, a culture area might be mapped quite in the manner in which the American areas have been laid out, and this was done, and called the East African Cattle Area. In the consideration of the area, it was found necessary not only to define its traits, but, in order to mark its limits, to differentiate it from those regions surrounding it which were not included in the distribution of its culture. Therefore, foundations were laid for the mapping of the Hottentot, Bushman, Congo, East Horn, and Eastern Sudan areas, although it was not in the purpose of the

study to describe these areas as the East African area had been described. At the same time, it was felt that a preliminary map of the culture areas for the entire continent of Africa might be desirable, for, as has been said, the arrangement of museum specimens, the cataloguing of books, and the purposes of pedagogy are all furthered by such mapping.

Before we proceed, however, to the naming and characterizing of the areas which have been roughly mapped, it might be well to take time to mention a few of the questions which must naturally arise in the consideration of the problems of the distribution of cultural data in areas. In the first place, may it not be objected that there is no definite change from one culture to another, but that this is so gradual that one is at a loss where to place the boundary line? This may or may not be true, but since the entire concept is schematic to the extent to which it is, the boundaries have been constructed, in this case, as in that of North America, as straight lines which are more or less arbitrarily drawn. It is only in some cases, in which the ever-present limiting climatic or geographical feature is strongly present, that one can distinguish sharply between the end and beginning of two cultures. This is true in the case of the division between the Congo area and the East African Cattle area, where the existence or non-existence of cattle is determined rigidly by the line of sixty-inch rainfall, which allows the vegetation among which cattle cannot live, and which permits the deadly tsetse fly to flourish. Again, how are the traits on which an area is to be based selected? In the main, the selection is quite empirical, those traits which are the most outstanding being those which determine the selection of an area and its description. However, this does not argue that a given trait may not be distributed over a number of areas, or even in parts of two areas. Thus, in the Victoria Nyanza region, we find traits that are distinctly Congo, while wife-buying prevails not only all over Africa, but in many other parts of the world as well. This does not mean, however, that the most distinctive traits of a given region are not to be primarily considered,—in the example given, the existence of cattle, or of the many customs which comprise the cattle complex,—and thus justify the refusal to place this spot in the Congo area rather than in the East African.

Further, it must not be assumed that the culture in an area is strictly uniform. It has been observed that the closer one scrutinises an area, the more it tends to be broken up into smaller and smaller units until it finally disappears. This is quite true, and in all culture areas there are small regions in which the culture is far from typical. However, this should not deter us from seeing the problem,—the classification of cultural data,—in the larger sense, and, for the purposes named, from following the plan which presents itself as most usable in such classification. The underlying basis of the culture area—the fact of the diffusion of culture—is another problem which might well merit extended discussion in this paper, but since it is the purpose to make it in the main descriptive, there is only space for the assertion that the American culture area differs distinctly from the *Kulturkreis* of the Graebnerian school. It is based on the continuous contemporaneous geographical distribution of the culture studied, and is not, as is the Graebnerian *Kulturkreis*, an attempt to reconstruct the origin and distribution of a *Kulturkomplex* composed of arbitrarily selected traits. The problem of the historical development and spread of culture is a real one, but it does not lie in the province of the present paper. The lack of insight of the Graebnerian school into the psychological as well as the material interrelations of the traits of a culture is perhaps the greatest difference between the *Kulturkreis* and the culture area, for, to us, the area, to mean anything must be more than a tabulation of unrelated mechanical data. It must envisage a living entity, which has a comparable significance in the lives of the peoples who live under it and practise it, and must not be a mere study of regions, perhaps not even continuous, in which this hypothetically diffused series of traits may be found.

If we turn to a consideration of the areas themselves in which we have divided Africa, we find, as we proceed from the southern extremity of the continent northward, that the first area may be called the *Hottentot*.[1] The culture of this region is not geographi-

[1] The references to the cultural facts mentioned in this paper have not been documented, as it is felt that they are of so general a nature that their existence can be established by reference to any of the general discussions of African tribes. The

cally sharply divided from that of the area to the north, that of the Bushman, nor to the East, from that of the southern portion of the East African area. Indeed, in earlier times, the Bushman and Hottentot were to be found much mixed thruout the region south of the 15th parallel South, and west of the 25th degree

FIG 1.

East longitude, but, since it is recognised that certain concessions may be made in view of the extent to which the culture area is schematic, it has been thought advisable to separate the two on this map. The culture of the Hottentots may be briefly characterised as follows: Cattle play a tremendous part in their lives, so

writer wishes to express his gratitude to Miss Dorothy F. Levy for her assistance in the preparation of the map which accompanies this paper.

much so, that their culture is to be distinguished from that of the East African area by the fact that the cattle are so much more important. The milking and most of the tending of the cattle is done by women, and the animals are the main economic stay of the people. Milk is never drunk soured, but is sometimes even mixed with water, when drunk. Clothing is made out of the hides of the animals, and the choicest food is beef. The meat is cut into long strips, and eaten from one end as the other end is held in the hand. Huts are round, and built of poles with mats thrown over them, and these poles are kept and carried from place to place. The head of the group, the "captain," is usually the man with the most outstanding personality. Cattle are given to the father of a young woman by a man who wishes her for his wife, but these are in the nature of a present and are eaten when the marriage is consummated. The language of the Hottentots is peculiar to them and to the Bushman, having a stong element of clicks, or sounds made by drawing in the breath. Property, such as they have, is inherited by the eldest son, but there is none of the strict legalistic attitude toward the passing of property as is found to the east. The Hottentot culture is peculiar, again, for the fact that only among these people do we find the use of animals for carrying purposes. The oxen are used to transport the material goods of the family from one place to another, and, since the early observers remark on the custom, it is not to be inferred that this is the result of European influence, although this custom occurs nowhere in East Africa.

Among the *Bushman*, we find a culture that is, on its material side, distinguished from the ones about it by its extreme poverty. These people are completely nomadic hunters,—they have no domesticated animal other than the dog, nor do they indulge in any agriculture, in which they resemble the Hottentots. They are fierce fighters, and their raids on the Hottentot and Bantu herds to the south and east have been remarked on by all European writers. They seek shelter in rock caves which are to be found in the extreme desert country in which they live, and there protect themselves from the elements as best they may. Beef is their choice food, and they obtain it in their raids, driving off the ani-

mals and slaughtering them as soon as they may without danger of immediate pursuit. They have an extensive folk-lore, and the language they speak resembles that of the Hottentots in its use of clicks. They are known for the paintings they make, which are found on the walls of the caves in the Karoo desert, and which take the form of intensively realistic polychrome reproductions of scenes in their lives, the most famous being those of a raid against the Hottentots, in which the relatively small size of the Bushmen raiders is vividly portrayed, and another showing the stalking of an ostrich, in which the characteristic poise of the animal's head is reproduced with much faithfulness. There is some dispute, however, as to when these drawings might have been made. The Bushmen have adopted a rude stringed instrument from their neighbors to the east and north, and they have few others. Their weapons are the bow and arrow and they stalk their game with great cleverness. During the dry season they find water in underground holes, and they know what roots to dig and suck in order to obtain moisture. Perhaps the best description of Bushman life is one given by Bishop Callaway by a Kaffir, and quoted by Ratzel: "The Abatoa are much smaller than the other children of men; they live in high rocks; they have no settled place of abode; their home is wherever they kill game; they eat it all up and go on. . . ."

The *East African Cattle area* is far larger than either of the two discussed above, and may be thought of as one in which the culture is basically agricultural with a cattle culture superimposed upon it. Except in the north, agriculture is engaged in by all the people, and even there one finds agricultural products, produced, however, by groups which are not allowed to have anything to do with the cattle. In all the area, except, perhaps, in the central portion between Lakes Tanganyika and Nyassa, where the tsetse fly is found in abundance, cattle play the most important rôle in the lives of the people. The milk is used for subsistence, and is usually drunk soured, the method being always to leave some in the gourd so that the new milk will sour rapidly and can be drunk immediately. The cattle are not sacred in the sense that they are worshipped,—indeed, they are prized for economic rather than for

religious reasons. Without cattle, a man may have as many acres of ground, as many hoes and trinkets and aptitudes as he may, but he will not have prestige from them. Only to the owner of cattle can this come. The cattle are, in the north, sometimes tended by women, and occasionally milked by them. This is never permitted in the south of the area, where men only must tend them. Iron-working and sometimes wood-working are specialized pursuits and only men may follow them. In the north, there is an interesting and widespread taboo that prevents people from eating meat and drinking milk at the same time, or indulging in either within some hours of eating vegetable products. Such taboos do not hold among the southern tribes of the area. Among the Banyankole the cattle complex becomes so strong that it dominates the political life of the people and chiefs are appointed to rule over so-and-so many head of cattle, rather than people. In the south, the cattle theoretically belong to the head chief, although this is not always the case. Politically, the tribes of the entire region are closely knit, although not so much so in the south as in the northern portion. There, there are well-defined rules of accession of the dynasties, and, to the northwest of Lake Victoria, we find a ferocity of rule which reminds one of mediæval times in Europe. There is found here also the double court of the king and king's mother, as well as that of his sister, which is found in the Congo area. The Masai and Nandi, in the northeastern part of the area, have warrior age-classes, but these are not found elsewhere. The Zulu organization in the southern portion of the area is a late development patterned after European procedure, but the typical political organization is to be found in the loosely organized tribe, with the real power residing in the headmen of the kraals, or perhaps the chiefs over a group of kraals. The social organization is mainly one of paternal descent,—the man gives a dowry of cattle for his wife, and the children belong to his family unless the dowry is not paid in full, when they belong to the wife's family. Polygamy is generally practised, the richer the man, the more wives he has, as is usually the case. Inheritance goes by careful rules, the usual one being that the eldest son of the first wife takes the major portion of the stock, and the younger

wives of the deceased father, and looks after the younger sisters until they are married. Light is thrown on the importance of cattle by a Zulu custom that the position of a child in the community and in the family is definitely determined by the source of the cattle which were given for his mother. All the people in the area practise agriculture, as has been said, and the land is held by the chief, usually, in trust for the people. Once land is granted to a man for use, it cannot be alienated,—there is, of course, no sale of land. Grazing land is unrestricted. The houses of the people are, in the southern and western portions of the area, round thatched huts, but among the Masai and the Nandi they are built of mud, and are rectangular in shape. The central unit is usually the kraal, where the cattle are kept. The women in the main work the fields and do the housework. The religion of this region is mainly ancestor worship, although there is some fetichism present. A strong characteristic of the entire area, which, however, is not peculiar to it, is the strong legalistic bias shown in all dealings between individuals. The language, except in the northeast, is Bantu. The clothing in the south and northeast is leather, in the main, while in the northwest barkcloth is largely used.

The *Congo* area is divided from the East African sharply by the line of 60 inch rainfall; and we get a very sharp differentiation of culture. The area has been mapped by Leo Frobenius (*Ursprung der afrikanischen Kulturen*), who has shown that in such diverse elements as the types of shields, dress, bows, houses, masks, human representations, pipes, tattooing, ornamentation, stringed instruments, wooden drums, knives, and the extensive use of the banana, the region mapped as the Congo area differs markedly from those surrounding it. However, there are other points on which he has not elaborated the area, and which will be mentioned here. The economic organization differs markedly from that to the south and east, although not so much from that to the north, which has been strongly influenced by the Congo, as will be shown. Here we have a closely knit system of markets, the like of which is not seen in the areas already considered. The iron hoe is generally the unit of value, although sometimes the barkcloth or the cowrie shell is used; the entire absence of cattle makes most of the

customs which most strongly characterize the East African area impossible here. There is a similar buying in marriage—a custom, however, not restricted to Africa—the unit involved is the hoe or cowrie rather than the cow, and the position of the women is much better than in East Africa or in the Mohammedan-influenced countries. The main economic pursuits are agriculture and often fishing, and hunting, and the domestic animals which the people have are the goat, pig, dog, chicken, in the main. The markets, which have been remarked on, are held at regular intervals, and there is a brisk trading in cowries, iron hoes, agricultural products, basketry, iron products, and the like. The political unit is usually the village group, which is ordinarily sedentary and lives in rectangular houses facing on a sort of street. The head of a group of villages is usually the ruler, and the office passes from father to son, the queen-mother, however, having her court in the central portion of the area. Property is usually inherited from father to son, and we sometimes find that this property includes such articles as trees growing on land which may have been relinquished some time before. Land is usually owned *en bloc* by a village, each member of which may use as much of his village's band as he needs. Boundaries are well known, and trespassing is not tolerated. The religion which prevails is fetichism, and an outgrowth of this is seen in the unique wood-carving which has come to be admired so generally. The masks which Frobenius mentions are typical for this region. Iron- and wood-working are done by specialists, as in East Africa, and the wood-workers often occupy places of honor in their communities. Other art products found only here are the embroidered raphia fabric, and the delicate basketry. In the Congo basin the language which prevails is Bantu, but along the arm which extends to the west the languages which are spoken to the north of it,—Ibo, Fanti and others, are spoken. This arm may be briefly mentioned. There may be some objection to including it in the Congo area, but it is felt that it is sufficiently like the interior in the cultural characteristics mentioned above, and enough unlike the Western Sudan, to justify its inclusion. It is not denied that detailed investigation may over-

throw this position, which is assumed largely on the basis of Frobenius' work already mentioned.

Another area may be discerned in the *East Horn*, although its characteristics are far from being as sharply defined with reference to its neighbors as is the case with the areas already mentioned. Indeed, this will be found to be true of the remaining areas, and their description is difficult in the extreme since their cultures are the result of such recent interplay of historical forces from the Mohammedan North and the Negro south that the lines drawn between them are vague and shifting and the exceptions numerous. However, the division of Northern Africa into areas is felt to be quite possible, and will be attempted. The East Horn comprises the projection of the continent into the Indian Ocean which reaches from the equator north to about the 15th parallel, and inland to about the 38th degree latitude East. The principal peoples who occupy it are the Galla and Somali, a large section in the interior being occupied by the kingdom of Abyssinia. The Somali live along the coast, the Galla inland. The former are mainly herders, having numerous animals such as the camel, cow, goat, sheep, and others. Along the coast proper there are towns engaged in commerce, and the townspeople and the herders do not readily mix. The Galla are also largely a herding people. Their culture is difficult to distinguish, in the south of the area, from that of the Masai and the Nandi of the East African area,—indeed, we have here an excellent example of the way in which cultures tend to shade into one another. However, as we go north, we find that agriculture is again present. The social organization is influenced by Islam, but there are age groups as among the Masai which rotate in power and comprise the warriors. There is a class of iron-workers, who, however, are regarded as pariahs, and who keep strictly to themselves, not being allowed to mingle or intermarry with the dominant Galla. The women tend the cattle and milk them; the camels are tended by men only, and are prized for their milk. Marriage is effected by the giving of a dowry of various animals, as in other portions of Africa. The property of the father goes to his eldest son, and this son becomes the head of the family, being responsible for his sisters and younger brothers,

who do not inherit anything. From the coast, there has been much contact with Europeans and Arabs, while the raids of the Masai from the south have brought in many influences from that direction.

The *Eastern Sudan* is, as has been remarked, a marginal area. The language of the people living there is Arabic; the religion, the Mohammedan. The geographical character of the region is pronounced desert, and the occupation of the people, which is largely herding, is influenced greatly by this fact, as they are forced to keep on the move the greater portion of the year in order to find sufficient water and food for their animals. There also we find a much greater profusion of domestic animals than to the south. In the East African area, we found only the cow, sheep, goat, dog, and smaller animals. This region is, however, the breeding-ground of the camel and the horse, and the cow plays a very insignificant rôle in comparison. There are few studies on which to base a description of the area, but a detailed account of the Kâbabish is at hand, and may be drawn on for data. These people are nomadic, and their social organization is completely paternal, as might be expected from the Islamitic influence on their culture. The head of the group is the sheikh, and he controls its movements. As soon as the dry season begins, they move north, and the camels are sent farther than the rest of the animals, which are left at the watering-hole. The milk of the camel is a large element of sustenance,—indeed, the camel plays a part highly analagous to that played by the cow to the south. It is this animal that is given in payment of the dowry before marriage, and it is the beast of burden par excellence. Once at the watering place a trough is dug, and the animals are watered at stated periods. The people live in tents, as might be expected from their nomadic character. Their clothing is cloth, not leather, and is much the same as is worn by the Berbers. During the rainy season the families in the group scatter so that the animals may graze more satisfactorily.

The *Western Sudan* is again the ground of the conflict between the Negro influence to the south and the Mohammedan to the north. The Mohammedan religion has been accepted largely all through this region, but the intense political organization that

characterizes it never gave way before the invaders to any great extent. For this is a region of great kingdoms,—Dahomy, Benin, Ashanti, Haussa, Bornu, Yoruba. They were closely-knit empires, with cities numbering thousands, and well organized governments which controlled the outlying regions. The ruler was the king, and the succession went from father to son in long dynasties. Characteristic of this region were the secret societies which Frobenius has described so vividly, and which so largely and efficiently controlled political events in the towns. The basic economic life consisted in agriculture, herding, and in trade, and we find here the same markets we found to the south. It is true that some of the kingdoms stretched to the coast, and it may again be objected that the projection from the Congo is unjustified on the accompanying map, but it is to be noted, that in these outlying regions the effect of the dominant civilization in the interior was weakest, and the culture resembles much more that of the Congo than of the north. The languages spoken in this region were diverse, each kingdom having its own. Perhaps the outstanding feature of the culture of this area is its art work. The terra cotta produced in this region has long been famous, and stone and iron was worked as well, the latter with especially great skill. Weaving was also beautifully done. The chief characteristics of the religion, where it is not Mohammedan, is its fetichism.

The remaining two areas which have been marked on the map may be briefly mentioned. The *Desert* area is inhabited chiefly by Berbers, who are nomadic, and whose chief occupation is camel and horse raising and transportation. The region is even more marginal than that to the south, but it points mainly to the north for its influences, although there have undoubtedly been some from the south. Of *Egypt* only a word may be said; it comprises a specialty in itself, and to attempt to describe its bewilderingly complex civilization here would only be presumptuous. Nor does it need description to support the assertion that it constituted a culture area in itself; further, its influences have been felt throughout the rest of the continent.

Thus, we see that an attempt to apply the concept of the culture area to the African data demonstrates that this is quite

feasible, and gives results that cannot but be of value in the study of the cultures of the continent. The student is handicapped, when one compares the available studies of African peoples with those which exist of Indian tribes, by the scantiness of the data, and by the fact that by far the greater amount has been collected and published by persons who were not trained ethnologists. However, by a judicious utilization of such sources as are available, one can check the accounts of the various reporters, and thus obtain a fairly clear account of the cultural conditions in any given region. By thus dividing the continent, more or less arbitrarily, it must again be admitted, into the nine areas sketched in this paper, it will be found that the chaos a study of Africa ordinarily presents is greatly reduced. It is hoped that this attempt will be followed by more detailed investigations tending to establish more definitely the correctness with which the present boundary lines have been drawn, and thereby to throw more light on the cultural situation in Africa and eventually on the historical relationships between the various regions which, to the present, have appeared so difficult and baffling.

COLUMBIA UNIVERSITY

ZUÑI WEAVING TECHNIQUE

By LESLIE SPIER

THE following notes were made at the Pueblo of Zuñi, New Mexico, in 1916. As there now appears little prospect of adding to them, they are offered in this incomplete form.[1]

Preparation of Yarn

Cotton was raised for textiles in the girlhood of my informant, a woman of sixty. There may even be a few plants still growing in the gardens about the pueblo. Casteñada reported however that "they do not raise cotton, but bring it from Totonteac" (the Hopi pueblos.[2]) The cotton seed was planted in holes about one and a half inches deep and covered with white sand. The garden patches are divided into sections about a foot square by little dirt borders to make watering by hand easier. The seed was watered for the three days following planting, but during the next three days received no water. This alternation continued until the cotton was ripe. The plant received no other attention, "like tomatoes." The seed was planted during the month Ce'omeyacun (July), and was ripe "when the corn was old," in the month Tlitekwakiatsanna (September).

The harvested cotton bolls were broken open and seeds and sand removed by hand. The fibers were picked over and straightened somewhat with the fingers, the snarls and imperfect fibers being removed. The fiber was not washed for "it was already white." It was carded on commercial wool cards. (The aboriginal tool for this purpose, if any, is unknown.) From this point on the treatment of the fiber was identical with that now used for wool.

While Mrs. Stevenson noted the use of milkweed fiber in weaving certain garments, my informant denied its use.[3] Neither

[1] Published by permission of the American Museum of Natural History.

[2] George Parker Winship: The Coronado Expedition, 1540–1542, (Fourteenth Annual Report, Bureau of American Ethnology, part 1, 550, 1896).

[3] Matilda Coxe Stevenson: Ethnobotany of the Zuñi Indians (Thirtieth Annual Report of the Bureau of American Ethnology, 77, 1915).

horse nor goat hair is used in weaving. A fiber is obtained from both the broad and narrow-leafed varieties of yucca. The centrally located leaves of the plant are folded into convenient sized lengths, four or five inches, and tied in this position. These bundles are then boiled, white wood ashes being added ("any kind," but cedar is in general use for cooking). The leaves are removed when sufficiently softened. When cool they are drawn between the teeth, the fibers being thus separated by chewing and scraping. These fibers, which are stored in bundles, are softened before use by soaking in water. They are rolled into rope on the thigh, or spun into yarn with the aid of the usual type of spindle.[4]

Wool yarn is used for blankets, dresses and occasionally for belts. The sheep are clipped by men, but further stages in the preparation of yarn are in the hands of women. The raw wool is washed in cold water alone, usually the river. One informant said either hot or cold water might be used. Tangles and dirt are picked out by hand and the fiber straightened somewhat by gently pulling out little tufts. It is carded on commercial cards. The desired color is obtained by mixing fiber of various colors on the card, e.g., gray from white and black fibers. The laps of wool are sometimes formed into a roving by the fingers, draft and twist being given by rolling on the thigh, and eventually they are twisted into a yarn on the spindle.

The spindle is a cylindrical shaft about eighteen inches in length and a quarter inch in diameter, with a wooden whorl, a circular disk from three to four inches in diameter.[5] The spindle shaft is quite smooth with its lower end rounded and its upper end either rounded or pointed. The spindle is thrust through a lap of wool, then while the lap is held in a fixed position the spindle is revolved about the lap as an axis. The twist which results fastens the lap in the middle of the spindle. The fiber is now ready to be spun into yarn by either of two methods.

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[4] This description is identical with that obtained by Mrs. Stevenson, loc. cit., 78.

[5] Mrs. Stevenson notes that "the spindle had no whorl, nor were any of the more ancient spindles furnished with whorls" (loc. cit., 77,) yet in her earlier report whorls of wood or stone are mentioned (The Zuñi Indians: Twenty-third Annual Report of the Bureau of American Ethnology, 372, 1904).

In the first method the spindle is spun on a support, usually the floor. While the left hand feeds in the roving and gives draft to the yarn, the right turns the spindle and guiding the yarn at the tip of the spindle, gives it twist.

The spinner is seated on the floor in the alternative method, sitting on her doubled-up left leg and resting on the right knee. In this posture the right thigh is thrust forward. The roving is started as in the first method, then with the spindle almost horizontal, its lower portion resting on the right thigh and its upper end suspended from the left hand by the roving, it is rolled up along the right thigh and kept spinning by the right hand. At the same time draft is given by the weight of the spindle and by gentle jerks of the left hand feeding the roving. By a combination of the methods after rolling the spindle on the thigh, the lower end is allowed to slide to the floor where it continues to spin. The spindle is thus partly suspended by the yarn and partly supported by the floor.

The draft and twist given the yarn depend on the use for which it is intended. For blankets a soft fluffy yarn of three-sixteenths to a quarter of an inch diameter is used. To obtain the tighter twists the yarn is often re-spun on the same or other spindles.

Further twist may also be given while the first spinning is in progress. The lower end of the spindle is wedged between the spinner's right foot and the floor, with its upper end pointing away from the spinner.[6] The left hand stretches the yarn while the right works out kinks from the spindle up to the free end. The slack yarn is then reeled in between the first and fourth fingers of the left hand. Spinning again proceeds with the left hand feeding out the partially completed yarn.

Finished yarn is rolled into balls a few inches in diameter to await weaving.

Weaving Dress Fabric

The warp is prepared on a frame consisting of two squared side bars and two round end bars. The side bars measure an inch

[6] This process in use by a Hopi is shown by James Stevenson: Collections Obtained From the Pueblos (Third Annual Report, Bureau of Ethnology, 1884, plate XLIV).

and a half by three inches in thickness; the end bars are an inch and a quarter in diameter. The tips of the end bars are sometimes nipple-shaped to fit into corresponding mortises. The frame is adjustable, the side bars having holes and notches cut in them so that the end bars may be set at the proper distance to give the required length of warp when the yarn is stretched.

The yarn is tied to one end bar, then unrolled from the ball over and over the end bars until the required width of warp is obtained. The side bars are then removed and the end bars replaced by loom strings. The ends of these strings are fastened

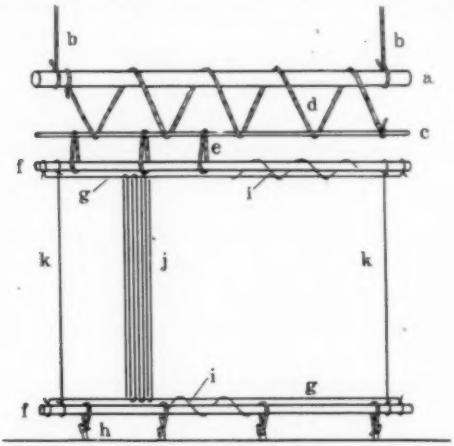

FIG. 2.—Diagram of Loom

to the round bars, which figure hereafter as the loom bars. The loom string is further bound to the loom bar by a cord running around both bar and string, passing between the warps. At each side of the warp an additional group of three warps is added, being tied directly to the loom bars. The heald rods are next fastened to the warp. When these are temporarily tied together the loom bars, warp, and healds may be lifted about together.

The loom in general use for weaving dress goods or blankets is sometimes stretched in a rectangular frame but is more frequently hung between ceiling and floor. In the latter case the place of the

frame is taken by a stout beam, four inches in diameter, suspended by ropes from the rafters (a and b, Fig. 2) and by pegs driven into the floor (h). The mechanism for regulating the tension on the warp and the position of the web relative to the floor consists of a bar (c), one inch in diameter, suspended from the beam (a) by a rope (d) passing many times around both. The warp may be tightened by taking up the slack in this rope, or by letting it out the portion of the warp being worked on may be kept at a convenient height above the floor on which the weaver sits.

The upper loom bar with the warp attached is now slung from the tension bar by a series of loops (e) while similar loops hold the lower loom bar to the pegs in the floor.

As the loom now stands the warp (j) is stretched over the loom strings (g) which are tied to the loom bars (f) at each end and tightly bound thereto by a string (i). An additional warp element (k), made up of two or more strands, is tied independently and stretches between the loom bars at each side of the warp.

So much of the loom is common to all dress and blanket weaving. Variations appear in the character of the yarns, the arrangement of the heald rods, and the manipulation.

The warp is about four and a half feet wide in a typical loom on which twilled dress fabric is being woven. Both the loom strings and edge warp elements are three strands. Four wooden heald rods, a quarter inch in diameter, are used. The uppermost rod (called the free rod) passes between alternate pairs of warps. The three other rods are attached to warps in such a way as to pick up alternate pairs. A string running loosely around each rod forms a series of loops within which the warps are caught. The arrangement is as follows:

Free rod (uppermost)-(in front) Warps 1; 4, 5; 8, 9; etc.
First heald (second highest)-(in loops) 1, 2; 5, 6; 9, 10; etc.
Second " (third ")-(" ") 2, 3; 6, 7; 10, 11; etc.
Third " (lowest) (" ") 3, 4; 7, 8; 11, 12; etc.

The three strand edge warps are independent of these rods.

Warp and weft are black woolen yarn and as both have about the same degree of tension they show equally in the finished product. Although both yarns are said to be from the same ball,

the warp appears to be somewhat thinner and somewhat more tightly twisted than the weft. This may be due to slightly greater tension on the warp.

Two bobbins with weft yarn are used. These are wooden rods, a quarter inch in diameter and twenty-two inches long, with a shallow groove near each end to keep the yarn from slipping off. The yarn is wound lengthwise on the bobbin, crossing from side to side, and with an extra loop around each end.

Manipulation. Picks of wefts are delivered in six inch lengths. A supplementary quarter-inch rod is thrust through the warps above the heald rods to form a temporary shed after the free rod has been raised. A pointed instrument is struck across the warps to shake them free from one another. To form the shed the weave sword is inserted between the warps beginning at the point where the last delivered pick ended. (The sword is a smooth stick, two feet or more long, an inch and a half wide, and three-sixteenths inch thick, with rounded edges). The sword is beaten down on the weft below and again is turned crosswise to form a shed. The requisite length of weft is released from the first bobbin before picking. The bobbin is then thrown bodily through the shed and the new pick is beaten down with the sword.

The supplementary rod is withdrawn and replaced after the first heald is raised. This time the other bobbin is thrown through the shed.

Weaving from left to right the sheds are formed by the free rod and the first heald, two wefts being carried forward at the same time. In the reverse direction the second and third healds are similarly raised in sequence. This produces simple twilling.

At the edge each weft passes around one thread of the three strand edge warp before being brought back into the web. It is arranged that one weft passes successively around the first and third strands, the other around the second and first, and so on.

In this manner six inches of web are completed at the bottom of the loom. The entire web attached to the loom bars is then turned over so that this completed part will be at the top of the loom. Weaving is begun again at the bottom. This reversal of the loom seems to necessitate the substitution of the third and

second healds for the free and first rods respectively when weaving from left to right and vice versa.

Inasmuch as the weaver sits on the floor the uncompleted portion of the web must be brought down within convenient reach. This can be done by letting out the tension rope (d, Fig. 2). The previously completed fell of cloth is shortened by joining its upper and lower edges by a cord sewn in with a running stitch. The surplus cloth falls back of the lower loom bar.

As weaving progresses the area of unpicked warp between the upper and lower woven portions becomes so narrow that the bobbins cannot pass. The heald rods are then removed and shedding is effected by separating the warps into proper groups and picking with the fingers. The final picks are put in with a commercial darning needle worked through the warps.

Wooden combs are used to adjust the picks. These are about six inches long, one end cut into five to eight teeth, the other sometimes pointed. The comb is used to press down the pick between the warps; the pointed end to adjust its regularity.

Dress Fabric with Diamond Self-Pattern

The woman's dress is an uncut black cloth, with an upper and lower border, about seven inches wide, of dark blue and showing a diamond shaped self-pattern. The black warp is native wool yarn, while of the wefts, the black is native but the blue is commercial yarn.

The form of the loom is that described above. The loom strings are in some cases two strands or three, the edge warps three or four. The four healds hold the warps as shown in the following schedule:

Free rod (in front)-Warps 4, 5; 8, 9; 13, 14; 17, 18; 22, 23; etc.
First heald (in loops)-2; 5, 6; 9, 10; 12, 13; 16, 17; repeat 20; etc.
Second heald (in loops)-1, 2, 3; 6, 7; repeat 10, 11, 12; etc.
Third heald (in loops)-3, 4; 7, 8; 11; 14, 15; 18, 19; repeat 21, 22; etc.

Thus the first and third heald rods are paired, the free rod and second heald.

It appears from the pattern figure (Fig. 3) that in grouping the warps while on the warping frame they were probably tied

to the healds in the order first, second, third, and last the free rod. It is also evident that the free rod could not be inserted below the third rod for it would slip down. It is therefore placed above the first rod.

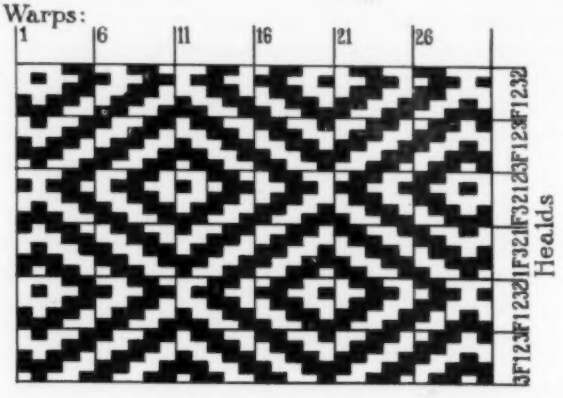

FIG. 3.—Diagram of Diamond Self-pattern, showing the numbering of the warps and the healds to be raised.

The lower blue border is woven first. The entire warp with loom bars and healds is then reversed so that this border is at the top of the loom. The other border is then woven at the bottom and then the body of plain rectangular web is woven with a black weft. It seems that it would be necessary to rearrange the heald rods for this plain weaving to a warp grouping such as that described on page 68. This could easily be done since both borders bearing the lozenge pattern are completed before this is begun.

Two bobbins are used in weaving. One is kept in advance of the other, both move in the same direction, and each in alternation delivers about six inches of weft at a time.

Manipulation. The order in which the healds are raised to form the sheds is indicated in the accompanying diagram[7] (Fig. 3).

[7] If the healds are raised in the order 1, 2, 3, F, 1, 2, 3, F, 3, 2, 1, F, 3, 2, 1, F; 3; and repeat, we get the lozenge figure used by the Navaho (Washington Matthews: *Navajo Weavers.* Third Annual Report, Bureau of Ethnology, 1884, fig. 47.) Raising them in the order 1, 2, 3, F continuously gives a chevron pattern.

Beginning at the bottom of the figure and weaving from right to left, the first heald is raised and the first bobbin thrown, then the free rod is raised and the second bobbin thrown. Then weaving from left to right, the third heald is raised and the first bobbin thrown, then the second heald and the second bobbin, and so on. In turning back into the web at the edge the bobbins pass through the strands of the additional warp, as described above.

The first heald is raised. A temporary shed is formed with a supplementary rod thrust through the warps just above the healds. The sword beats down hard on the last delivered pick. It is then turned crosswise to form a shed below the healds. The requisite length of yarn (about six inches) is released from one bobbin. The bobbin is thrown. The pick, which lies very slack, is pushed down with a weave dagger to the previous pick at points about an inch apart. This pick will be beaten down when the procedure is repeated during the delivery of the pick next above. This is slack weaving, the warps being under tension and the weft delivered very slack.

When the dress fabric is removed from the loom the loom string is found to form an attractive edging. Tension of the warps on the string causes it to sag from the loom bar between the points where the binding string held it close to the bar. The completion of the web makes the resulting scallops a permanent feature of the loom string.

The natural tendency is to narrow the web midway up the loom. To obviate this a stick, an inch wide, is sewed at each end to the web at its upper margin. Another type of stiffener is a similar stick bound with cord near each end. A pointed twig thrust through the fabric and inward under this binding serves to hold the fabric fast to the rod.

Blanket Weaving

The blanket loom is identical with that used for weaving dress fabrics. Commonly the loom string is two-ply on which a warp of commercial cord is strung. The additional edge warps are two strands of cord. The weft however is a soft fluffy native yarn, fully a quarter inch in diameter. The warp being under

tension and the weft delivered very slack, the warp is completely hidden in the finished product. The weaving is of plain rectangular type: two heald rods are used, alternate warps are tied to one, the other merely passes under the other set.[8] However, the last single warps at the edges, i.e., those next the additional two strand warps, are not caught in the loops. No bobbin is used in weaving such blankets.

Manipulation. The free rod is brought down to the heald, i.e., raised. A shed is formed by turning the sword sidewise. A length of weft slightly greater than the width of warps is broken from the ball of yarn. This is carried through the shed with the fingers and picked very slack for about a foot at a time. The sword beats down. The surplus weft at the edges is turned back into the fell. This is repeated using the heald rod.

When the blanket is half completed it is reversed in the loom and weaving proceeds again from the bottom upward. The last picks are drawn in without the aid of the heald rods.

Weft picks forming the pattern—a series of transverse lines different in color from the body of the fabric—are re-adjusted to a true horizontal position with the aid of a pointed tool.

In some blankets there are designs consisting of a series of isolated rectangles of solid color. A length of body-color weft is broken from the ball of yarn and picked in up to the design area. A length of design-color weft is picked in, and so on. In each case the successive wefts are turned about the warp at the edge of the design area and brought back into the fell in order to lock the fabric.

While the position of the free rod is usually above the heald, in some blanket looms it is below.

Sixteen inches had been woven on one loom examined (three feet wide) in three days of intermittent labor.

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[8] There is a coarsely woven saddle blanket in the Museum of Anthropology, University of California, bearing a lozenge-pattern. This was evidently woven with healds like the dress goods, but there are many irregularities, showing that the sequence was not strictly adhered to.

Weaving Belts

The weaving of belts is distinct from weaving blankets and dress fabric. While the latter are made by the manipulation of weft on a foundation of warp, the belts are made by the manipulation of warp with the insertion of weft as a binder or filler.

Some belts are made by a process of tubular weaving.[9] The warp is prepared on the adjustable frame described above; the warp being wound over and over the end bars. No loom strings are used in this type of weaving: the side bars of the frame are removed and the round end bars with the warp strung on them are

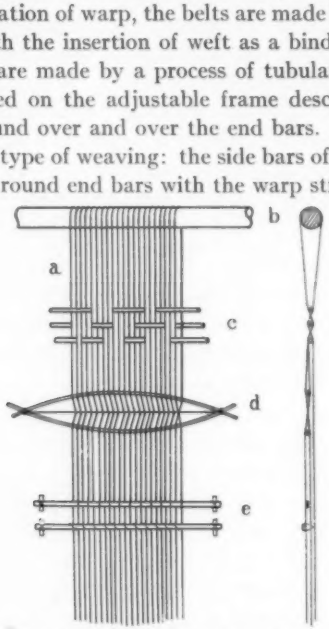

Fig. 4.—Diagram of Loom for Belt Weaving

set in the loom as loom bars. The warp running continuously over these bars may be pulled over them as over rollers. As the weaving proceeds upward on the anterior warps, the warp is pulled down to a height convenient to the weaver seated on the floor. The resulting fabric is a tube, perhaps eight or ten feet in circumference but only three to five inches in length, i.e., the width of the belt.

[9] The tubular weaving of belts and the weaving on belt-looms should not be confused. Belt looms and their manipulation will be described later.

Washington Matthews found no tubular belt weaving among the Zuñi (loc. cit., 390).

The belts consist uniformly of a series of longitudinal bands of various colors placed symmetrically about the median line of the belt. The area containing the design is the middle panel. Commercial yarns are used for the warp for the most part. Warps of each color are placed in proper position on the warping frame. For the central area containing the design, warps of both the ground and design colors are placed over the same part of the frame, giving two sets of warps. The completed belt is finished on both faces; on the back the design appears in the reverse color combination.

The loom is of simple construction (Fig. 4). The warp (a) is stretched directly on the loom bars (b) which are either suspended in a frame or between floor and rafters. To prevent the warp slipping around the loom bars when beating up, the warps to the rear of the loom bars are brought up to the anterior set and caught by thrusting three little rods through the combined warps as a locking device (c). A cruder device for the same purpose is a cloth bound tightly around the entire warp as close as possible to the lower loom bar.

Inasmuch as the warps are merely laid on the loom bars and held there only by tension, a device is necessary to prevent one warp slipping over another while the loom is being adjusted. For this purpose the anterior warps are divided into two sets and locked by two flexible rods tied together at the ends and bowed by a cord connecting the ends (d). A simpler device consists of two stiff rods similarly placed and bound rigidly together at the ends. This also gives a starting-place to pick in the first wefts.

Only two heald rods are used: one is free; alternate warps are fastened in the loops of the other. Both pass through only the anterior set of warps. In one case short cross-pieces were fastened by a half-lap and cord binding near the ends of the healds to keep them from coming out of the warps (e). The special sheds needed to form the design are groups of warps picked up with the fingers.

Usually a little bundle of weft is thrown, but sometimes a small stick on which the weft has been wound serves as a bobbin.

Manipulation. The heald rod is raised. A pointed tool struck across the warps frees them from one another. The sword beats

down on the previously delivered pick. The warps in the central design area are parted into proper groups for the design, warps of both ground and design colors being selected. The sword is thrust crosswise through these to hold the shed. The bobbin or bundle is thrown under tension. The pick is beaten down with the sword. It will be noted that while the heald rod forms the shed for the side stripes, the ever varying shed in the design area is formed with the fingers and sword.

The weft is completely covered by warp and does not show in the finished fabric (except in certain designs). It serves merely as a binder or filler.

No mechanical shedding device is used to produce the figure: the growing design is kept in view on the front of the loom. No patterns are in use that I could learn, the design being kept in mind during weaving. Several straight lines are woven completely across the middle panel when beginning or ending the design. Weaving is complete when all but about a foot of warp has been picked. The unpicked warp is cut in two, leaving an ornamental fringe at each end.

Inasmuch as there is no mechanical shedding device used, mistakes in the design may occur. I noted that slight mistakes are either recognized as such and ignored, or the proper heald being raised the incorrect pick is withdrawn and then correctly replaced. I also noted that familiarity with a design does not imply ability to weave it. In one case the sister of an absent weaver undertook to demonstrate weaving of this type. In spite of the simplicity of the design which could be copied from the already finished portion, she could not continue with the weaving.

Belt Loom Weaving

Belts and head bands are also woven on belt looms. In this the warps are strung between some convenient support, such as a hook in the wall, and the weaver's girdle. The warp is manipulated by means of a reed. Belt loom weaving may be losing ground to belt weaving on upright looms. At least I judge so from the slightly contemptuous attitude toward the use of belt looms and the carelessness in storing the reeds.

Warp for the belt loom is prepared on two stakes driven into the floor at the required distance. One informant stated that this should be twice the length of the outstretched arms. The yarn is wound over the stakes, passing alternately through a hole in the reed and through the adjacent slit.

My Zuñi informant said any stakes might be used, but from an old Hopi man, resident at Zuñi from childhood, I secured two prepared stakes which he insisted were Zuñi. (He further stated that belt looms are not used in the Hopi pueblos, belts being woven on upright looms.)

The weaver is seated on the floor with one end fastened to a convenient support level with her shoulders,[10] or to a stick resting against her soles, according to Mason.[11] The other end is either fastened directly to her belt, as in the case of the short headbands, or to a belt stick. The belt stick (Fig. 5) is held in front of the weaver's girdle by a cord around her waist. As weaving proceeds the fell of completed cloth is rolled around this stick and pinned to itself to prevent unrolling.

FIG. 5.—Belt Stick (A.M.N.H. 50.1-8841; 27 cm. long.)

The reed varies from twelve to thirty inches in length. It is made of two longitudinal flat rods between which many parallel splints, five to seven inches long, are transversely tied. A hole is pierced through the middle of each cross-splint.[12] Alternate warps pass through these holes, the others through the spaces between the splints.

Only a few of the many reeds seen were marked for warp grouping. The most frequent mark was a colored splint. According

[10] Illustrated by Matthews, Pl. XXXVII and by Stevenson: *The Zuñi Indians*, Pl. XCIV.

[11] Otis Tufton Mason: *A Primitive Frame for Weaving Narrow Fabrics* (United States National Museum Report for 1899, Pl. I, 492, 1901). A similar method of holding the warps by children learning to weave is shown by Stevenson (*The Zuñi Indians*, Pl. LXXVIII.

[12] Illustrated by Matthews, fig. 58, and Mason, figs. 17 and 18.

to informants this marked the boundary of two color areas, but I am not certain of this. They uniformly expressed surprise at a reed obtained from a Zuñi woman which had groups of splints variously colored and denied the general use of such a device.

Manipulation. A shed is formed by raising the reed, the fingers giving active assistance in separating the warps. Warps from both the upper and lower sheds are selected and divided with the fingers into proper groups for the design. The sword (about the shape and size of a butcher knife[13]) is beaten down on the last delivered pick. A shed is formed by turning the sword crosswise. The weft is thrown. (No bobbin, but a small bundle of yarn is used.) The pick is beaten down with the edge of the hand and the sword. When the reed is thrust down to interchange the position of the sheds, the operation is repeated.

Warp tension is effected of course by the pull of the weaver's body. The weft is delivered under tension, so that it does not show in the finished belt unless it is intended to form part of the design. Like the weaving of belts on the upright loom this weaving is done by warp manipulation, the weft merely forming a binder or foundation.

The weft is not always delivered entirely across the warp. When the design necessitates it, weft is used to fill in the design unit, crossing only those warps used in that part of the design. Since the warps are not joined at the borders of the design area, it is obvious that this cannot be continued indefinitely: the weft must be picked entirely across the warp at frequent intervals.

Men as Weavers

I have referred above (p. 76) to the inability of one woman to weave a belt design although she must have had exceptional opportunities to become familiar with the loom. I was also interested to learn what men might know of this sex-limited technique. The question is of particular interest inasmuch as there is evidence that the men, not the women, wove at the time of the Conquest.[14]

[13] Illustrated by Mason, loc. cit., Pl. 9.
[14] Winship, 550.

I found no men who were weaving or who had woven, yet several blankets were purchased which were said to have been woven by old men.[15] I do not believe that this information was manufactured for my benefit, as the blankets were secured in the ordinary course of collecting. I am not certain that the men referred to were not Hopi residents of Zuñi.

The men appear to have considerable knowledge of all types of weaving. Replies to inquiries as to the details of technique would come quite as often from the men present as from the women. The response would often take the form of a demonstration, in which a facility in manupulation was displayed far in advance of what might be expected of mere spectators. These demonstrations were for the most part of spinning. They handled the spindle and yarn with all the characteristic movements and technical tricks of the skilled worker. Questions dealing with the sequence of movements in the loom, the character of wefting to produce desired results, and the general mode of procedure in the case of the loom itself were correctly answered by the men, although none of the men offered to sit down and weave. I do not know whether the men could stretch the warp and arrange the healds, but they seemed familiar with the process. Again, the men knew how cotton was raised although it was grown in gardens tended by women alone. Incidentally, I believe that these answers were given by the men only because they were less shy toward a stranger.

It is interesting to note the Zuñi attitude toward Hopi weavers resident at Zuñi. The usual attitude was matter-of-fact: they did not look askance at these men weavers: this was no matter of "woman's work." This attitude seems to be something more than recognition of the fact that in the Hopi pueblos men weave.

Comparative Notes

There are surprisingly few published accounts of Southwestern weaving. Without doubt all the Pueblos wove, but I have

[15] Mrs. Stevenson cites a boy weaving in 1881 and a priest in 1902 (*The Zuñi Indians*, 372). Dr. Parsons informs me that one of her men informants was named Big (i.e., great) Weaver.

not been able to find records of even that fact. These notes are based only on the more obvious sources.

Cotton was grown by the Hopi, by the Tewa in small quantities at the time of discovery, with the possible exception of Pecos and Taos, by the Pima, Maricopa, Western Apache, Havasupai and Tepehuanes.[16] It was not grown by the Navaho, nor at Zuñi, Acoma, and the Tano pueblos at the time of the Conquest, Bandelier implies.[17]

The Hopi and Pima freed the cotton of seeds by whipping it with switches. The Navaho wash the wool with hot water and yucca root. Nowhere is a primitive carding tool described, but the Navaho are credited with using teasels.[18]

Zuñi women spin; so do the Pima, although there the men weave. Hopi men spin as well as weave.[19]

Loom weaving is credited to the following Southwestern tribes: Zuñi, Hopi, Acoma, Santa Clara, Nambe, Cochiti, Navaho,[20] Pima, Papago, Maricopa,[21] Tepehuanes,[22] Opata, Tarahumare,

[16] Ives (1858) cited by L. Lewton, The Cotton of the Hopi Indians: A New Species of Gossypium, (Smiths. Misc. Coll., 60, 1912, 4); W. Hough, The Hopi Indians, 1915, 85. Tovar stated that the Hopi did not weave cotton cloth (E. S. Curtis, North American Indian, XII, 1922, 7.) W. W. Robbins, J. P. Harrington, and B. Freire-Marreco, Ethnobotany of the Tewa Indians, (Bull. 55, B. A. E., 1916, 76, 102, 103). A. F. Bandelier states that it was not grown on the Rio Grande north of Cochiti (Final Report on Investigations among the Indians of Southwestern United States, etc., Papers, Arch. Inst. Amer., American Series, III, part I, 37). Padre Font (1775), Whipple (1852), and Bartlett (1854) cited by Lewton, 4; F. Russell, The Pima Indians (26th Ann. Rept., B. A. E., 1908, 148); Curtis, II, 1908, 5. A. Hrdlička: *Maricopa Weaving* (Amer. Anthrop., n.s., 7, 1905, 361). A. W. Whipple, Thomas Ewbank, and Wm. W. Turner, *Report Upon the Indian Tribes* (Pacific Railway Repts., III, 14, 1856). Bandelier, 93.

[17] Matthews, 375; Bandelier, 176, 37, 157.

[18] Hough, 85; Russell, 148. P. E. Goddard, Navajo Blankets (Amer. Mus. Journal, X, 1910, 205); Franciscan Fathers, An Ethnologic Dictionary of the Navaho Language, (Saint Michaels, Arizona, 224, 1910). G. W. James, Indian Blankets and their Makers, (Chicago, 109, 1914).

[19] Russell, 150. Curtis, XII, 51.

[20] Hough, 82; Lewton, 5. Note that Tovar stated that they did not weave (Curtis, XII, 7.) A woman's dress (2-10764) from Acoma is in the Museum of Anthropology, University of California. Robbins, Harrington, and Freire-Marreco, 103. Bandelier, cited by Matthews, 391. Matthews et al.

[21] Russell, 148; Curtis, II, 6, 111. Hrdlička, 361; Curtis, (II, 82, 116,) states that the Maricopa learned to weave cotton cloth from the Pima.

[22] Bandelier, 93.

Yaqui, Mayo, Cora,[23] and Huichol.[24] Undoubtedly other Rio Grande Pueblos should be added, but references to weaving among them remain obscure. These groups mark the northern limits of loom weaving in the historic period. Presumably the Navaho did no weaving in the days of the Conquest.[25] It does not occur among the Havasupai and Diegueño, and probably not in any other non-Pueblo tribe of the southwestern United States. It would be interesting to know whether it is found among the more southerly Apache and Lipan bands.

There is some variation in the sex differentiation of weaving. Zuñi and Navaho women weave; men also occasionally.[26] Among Hopi and Pima men are weavers, and by implication this is true at Santa Clara.[27] Either men or women wove among the Maricopa.[28] It is the common assumption that all weaving was done by men at the Spanish advent and that the Navaho learned the art subsequently to the introduction of sheep.

Hopi, Navaho, and Pima spindles resemble the Zuñi in having disk whorls.[29] Pepper states that the older Navaho whorls are thicker and smaller than that illustrated, which seems to be four or five inches in diameter. The Pima also have a spindle in which a small cross-stick takes the place of the whorl. It has been assumed that pre-Conquest spindles lacked whorls, but this awaits further archeological data. I am not sure that Mrs. Stevenson's remarks mean that she actually saw Zuñi spindles without whorls.

Both Zuñi methods of spinning are found elsewhere. The

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[23] Handbook of American Indians, (Bull. 30, B. A. E., I, 1907, 154, 348).

[24] C. Lumholtz, Decorative Art of the Huichol Indians, (Mem. Amer. Mus. N. H., 3, 1904, 284). Weaving of some sort is credited to the Seri by W. J. McGee, The Seri Indians, (17th Ann. Rept., B. A. E., part 1, 1898, 230).

[25] Espejo stated that they obtained cotton mantles by trade (Bandelier, 176).

[26] Matthews, 385; G. H. Pepper, The Making of a Navajo Blanket (Everybody's Magazine, VI, 1902, 35); R. W. Shufeldt: The Navajo Belt Weaver (Proc. U. S. National Mus., 14, 1891, 393.)

[27] Curtis, XII, 24, 220; Lewton, 5. Hough, 82, notes a Navaho woman weaver resident among the Hopi. Russell, 148, 150, cites Bartlett (1854), 149. Robbins, Harrington, and Freire-Marreco, 103: "At Santa Clara the last man who wove large ceremonial blankets of cotton died less than thirty years ago."

[28] Hrdlička, 361.

[29] Matthews, 376; Pepper, 38. Russell, 148.

Navaho rest the spindle on the ground, sometimes letting it rest against the leg as well: the Hopi roll in on the thigh.[30] The Pima use an unusual method, supporting the lower end between the big toe and the next, where it sometimes rests in a cup.[31] This recalls the pre-Columbian method in Mexico. The yarn is rolled in balls by the Pima, Hopi and Navaho.[32]

The construction of Hopi and Navaho looms is identical with that of the Zuñi.[33] These have the same method of suspension between ceiling (or beam) and pegs (stones, or log) below. They have the same tension bar and the device for regulating it, the loops coupling it to the loom bar, loom strings attached by a binding cord, and additional edge warps. An unusual Navaho arrangement was necessitated by a low ceiling. The loom is the same but the warp is doubled back over an upright frame instead of being fastened to the ceiling.[34] These looms are vertical, but those of the Pima, Papago, and Opata are horizontally placed. They consist simply of two pairs of stakes which hold the loom bars apart. This loom with the warp directly on the loom bars is essentially the arrangement for Zuñi belt weaving, although it is not tubular weaving.[34a]

The Navaho, like the Zuñi, use a warping frame, but the side bars are rough poles. According to Matthews, the warps are wound continuously over the end bars, but cross at their midpoints.[35] This may be the Zuñi custom also. It is quite convenient for separating the sheds when attaching the healds, but after the warp is taken off the end bars, it comes to the same thing as the Zuñi method. The loom string is three ply and twined through the warps.

In the Navaho method described by Pepper the loom strings

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[30] Matthews, Pl. XXXIV; Goddard, 205; Pepper, 38; Franciscan Fathers, 227. Pepper, 38.

[31] Emory and Bartlett, cited by Russell, 148.

[32] Russell, 148. Matthews, Pl. XXXIV.

[33] Hough, 85; Curtis, XII, ill., 84; James, figs. 244, 245. Matthews, Pl. XXXVIII, fig. 42; Goddard ill., 203 206; Franciscan Fathers, 221, 235.

[34] James, fig. 130.

[34a] Russell, 149-151; Curtis, II, 111; Bandelier, 242.

[35] Matthews, 378; Pepper, 38, ill., 39; Matthews, 379; Franciscan Fathers, 235

are first bound directly to the end bars and the warp passed through these strings.[36] This obviates substituting loom bars for these end bars, but seems rather difficult to manage.

The Pima, and presumably the Papago, warp the yarn directly on the loom bars tied to the stakes.[37]

Navaho bobbins are twigs "wound like a kite string," that is, much in the Zuñi manner, or balls of weft are used. The Pima bobbins are wound exactly like those of the Zuñi.[38]

The Navaho, like the Zuñi, never pick in the full width of the warps at one time (except for narrow belts). It is certainly possible to insert the weft for the full width where the design sheds are formed by healds. Perhaps the habit of picking in small sections of warp at a time is carried over to dress fabric weaving from blanket weaving, where the designs commonly cover only a narrow area. Then too it seems difficult to throw the bobbin for the full width of the loom without some mechanical device. The Navaho also form the sheds with the weaving sword and use a fork to push down the picks.[39]

Additional edge warps appear in Hopi and Navaho looms, fastened directly to the loom bars. Matthews noted that when the Navaho used a two strand edge warp, these were twisted each time the weft passed around them.[40] This may also be the Zuñi usage, although the strands do not have to be twisted.

Hopi and Navaho reverse the loom after weaving a small portion of cloth, and the latter at least fill in the last picks in the Zuñi manner.[41] Sometimes the Navaho weave a little at the top of the loom and do not reverse it. Matthews describes weaving from bottom to top without reversing the loom as the exceptional Navaho practise, the desire being "to have both ends uniform even if the figure be a little faulty in the center." But I note that most of the published illustrations (blankets, for the most part) do not show a finished section at the top of the loom.

[36] Loc. cit., 39.
[37] Russell, 151.
[38] Pepper, 40; Matthews, 378. Russell, 151.
[39] Matthews, 380, 381; Franciscan Fathers, 241.
[40] Curtis, XII, ill., 84. Matthews, 381.
[41] James, figs. 244, 245; Matthews, 381.

The Navaho use the same method of doubling the fell on itself in order to lower the unpicked warp as do the Zuñi, according to Matthews. Pepper, however, describes a method whereby the lower loom bar is removed, the fell rolled up, and the loom bar sewed to the upper part of the fell by a cord passing through the loom cord which is still attached to the bar.[42]

Hopi and Pima use a stretcher to maintain a uniform width. That of the Pima is similar to the second Zuñi type described.[43]

Hopi, Navaho, and Pima weave with two healds, i.e., one free and one fastened to the warps. The Hopi and Navaho also use four rods like the Zuñi, which in the Navaho case at least is specified as giving a diamond pattern.[44] Matthews' fig. 47 shows an arrangement of the warps on the healds identical with that for the Zuñi diamond pattern. His warp no. 1 corresponds to my no. 4. It should be noted that his fig. 48 does not show the pattern produced on the face of the cloth by this heald arrangement but that on the reverse side.[45] My Zuñi pattern differs (Fig. 3) only in that the third and second healds are raised immediately above the center of the diamond.

In producing designs on blankets the Navaho sometimes tie cords around appropriate groups of warps and sketch the designs in the sand.[46] Both these practices may occur at Zuñi.

Two-faced blankets, thought to be a recent Navaho innovation by Matthews, were not noted at Zuñi.[47]

Weaving of belts is found among Zuñi, Hopi, Cochiti,[48] Navaho,[49] Pima, Maricopa, and Huichol.[50] Navaho and probably

[42] Matthews, 380; also Franciscan Fathers, 238; Pepper, 41. The last method seems impossible, for the loom cord would be part of the completed fell.

[43] Curtis, XII, 84; Russell, 151.

[44] Curtis, XII, 84; Goddard, 203, 206; Russell, 151. For illustrations see Goddard, 201; Pepper, 36.

[45] Incidentally the bottom of the cloth in his fig. 48 is at the left hand of the picture.

[46] Pepper, 40; Matthews, 385. The latter practice is denied by the Franciscan Fathers, 250.

[47] W. Matthews, A Two-Faced Navaho Blanket, (Amer. Anthrop., n. s., 2, 1900, 638-642; Franciscan Fathers, 244.)

[48] Bandelier in Matthews, 391.

[49] Matthews, 389-391; rare according to Shufeldt, 391.

[50] Russell, 152. Hrdlička, 361. Lumholtz, 284.

Hopi make these by tubular weaving: at Cochiti broad belts are made in this fashion, the narrower ribbons being woven on belt looms, according to Bandelier

The Navaho prepare the warp on four stakes, according to Matthews, not directly on the loom as the Zuñi do. This has the advantage of dividing the sheds at the same time. However, Stephens noted warping directly on the loom bars. In this case the bars were held in place by stakes, not by a frame. A stick about which each warp is looped takes the place of the three sticks and the bowed sticks of the Zuñi (Fig. 4, c and d). The unfilled warp is cut to form fringes also.[51]

The belt loom is used by the Hopi (notwithstanding my Hopi informant), Cochiti, and Huichol, but not by the Navaho.[52] The Hopi hold this between girdle and feet; the Huichol fasten one end to a post.

The reed is used by the Hopi, but evidently not by the Huichol.[53] Mason figures a Hopi reed in which the cross-rods are of various lengths to mark the warp for the design.[54] The Huichol sword looks like a "bowie-knife or short-sword," presumably similar to the Zuñi affair.[55]

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[51] Matthews, 389-390; A. M. Stephens in James, 132.

[52] Hough, 86; Lumholtz, 284.

[53] Cf. Lumholtz, fig. 367.

[54] Loc. cit., Pl. 7, fig. 5.

[55] Lumholtz, 285. Other data on Hopi weaving are given by Walter Hough: *The Hopi Indian Collection in the United States National Museum* (Proceedings, United States National Museum, 54, 1918).

BOOK REVIEWS

METHODS AND PRINCIPLES

The Children of the Sun; a Study in the Early History of Civilization. W. J. PERRY. New York: Dutton, 1923. xv, 551 pp., 16 maps. $8.00.

Mr. Perry, who is reader in comparative religion in the University of Manchester, is a representative of the historical school founded by Professor Elliot Smith and the late Dr. Rivers; and his book presents the tenets of that school with greater clearness than could reasonably be expected of the briefer expositions preceding his present one. Under the caption of "the archaic civilization" he describes a complex embracing, among other features, irrigation, pottery, metallurgy, the sun-cult, mother-right, exogamy, the dual organization. The combination existed in Egypt at the beginning of the Sixth Dynasty and began to be diffused over the region stretching from Sumer through India, Indonesia, and Polynesia to Central America and the Eastern United States, the impulse firing the voyagers being the quest of pearls and other precious materials that were supposed to preserve life (p. 459 f.). In Egypt alone there was progressive cultural evolution, everywhere else the process of degeneration set in, in varying degree (p. 472). The extent to which the author is willing to carry this conception is illustrated by his contention that probably

> it will be found that, prior to the coming of this civilization, the native peoples were devoid of any magical or religious practices or ideas (p. 480).

The Australians, for instance, are said to have derived most of their culture, including totemism and magic from the "archaic civilization" that sprang into being on the banks of the Nile (pp. 346, 397).

Although Mr. Perry has read widely and adopts a uniformly courteous tone, I have rarely encountered a more parochially dogmatic work. My objection is not so much to the views advanced (not that I share them) but to the perverse refusal to give reasons against positions held on definite grounds. For example, scholars who decline to accept the historical value of oral tradition are waved aside without any attempt to examine the grounds of their skepticism (p. 128); the origin of exogamy is sought in a deliberately executed political scheme as though that type of theory had never been criti-

cised (pp. 368 sq.); and as though Boas, Swanton, Father Schmidt and others had never written on the subject, the uniform priority of maternal over paternal descent is alleged (pp. 240 sq.). Unfamiliarity with the progress of anthropological thought is likewise exhibited in the references to Professor Ellsworth Huntington's theories (p. 408), which are not more palatable to most of us than to Mr. Perry. To this should be added a persistent reliance on catchwords which in some cases are so vague as to lose all significance. For example, the term "dual organization" as here used is not restricted to a moiety system but extended to dualism of every form, economic, political, mythological (p. 282). I am by no means convinced that every moiety system in the world can be traced to a single origin, and where the notion of twin heroes is brought under the same category and reduced to the same historical source as matrimonial group dualism I must confess that the argument transcends my understanding. Mr. Perry seems greatly excited over the fact that certain peoples divide into two sides when playing games and that the division is by the pre-existing moieties (p. 326). But the very nature of certain games implies a contest between two opposing sides; and when the playing is by groups, nothing seems more natural than to divide along lines already familiar to the players. Regarding the alleged historical unity of the dual grouping in Mr. Perry's sense, I should like to provide him with a concrete example of the quite independent development of such an alignment in recent times. When visited by Prince Maximilian of Wied-Neuwied, the Crow had seven military societies embracing the male population, but within forty or fifty years the number was reduced virtually to two, the Foxes and the Lumpwoods, which organizations then represented a perfect example of two rival and in a sense antagonistic groups. My reading suggests that a similar development through reduction has repeatedly occurred.

Mr. Perry's protest notwithstanding (p. 476), I also believe that his use of such a term as "pottery" exemplifies the catchword mania when applied indiscriminately to prove diffusion. Egyptian wheel-made pottery is *not* equivalent to the hand-made pottery of America or Oceania. I cannot conceive wheel-using male potters disseminating "pottery" by teaching *women* to mould or coil clay by hand.

Readers of this Journal will be particularly interested in the author's discussion of New World problems. As a matter of fact, it bristles with inadequacies and even positive misstatements of fact. South America is virtually ignored, as though the culture of the West-

ern Hemisphere could be adequately discussed without that continent, and the Aztec are described as a pastoral people (p. 234). It does not occur to Mr. Perry that before assuming an alien origin for Central American civilization it would be desirable to consider the possibility of its derivation from the ruder aboriginal cultures which are disdainfully neglected throughout under the not wholly appropriate name of "food-gatherers." I cheerfully admit that the author impartially ignores facts favorable and unfavorable to his hypotheses. For example, he emphatically denies that the Pawnee have the dual organization, though its recurrence would yield an additional example for the spread of that feature (pp. 315, 321); yet matrilineal nonexogamous moieties associated with winter and summer, respectively, are noted by Murie as a most significant element of Pawnee society (Anthropological Papers, American Museum of Natural History, XI, p. 642). This error may seem a mere peccadillo in a work of such dimensions, but it is symptomatic of the entire treatment of American data. Mr. Perry does not know how to appraise the evidence available because the prerequisite saturation with ethnographic information is wanting. The extremely meagre information on the Eastern Siouans is weighted as heavily as that based on the ample Omaha records, and we are told that the Sioux in their ancestral home had absolute monarchs (p. 194). The Saponi are said to believe in a creator, but the Omaha "have no idea whatever of creation, nor have their cognates the Osage, Ponco (*sic*) and others" (p. 212). Sir J. G. Frazer's misinformation on the change of descent among now patrilineal tribes is dished up once more (p. 252), though the simple process of examining the kinship terminologies of some of the peoples cited would show how deep-rooted paternal descent is among them. To add but one illustration, the Navaho are alleged to be "derived from the same source as the Pueblo peoples" (p. 267).

It is, however, more profitable to discuss another matter, on which Mr. Perry can cite at least the partial support of respectable Americanist authority. He treats all the North American cultures as derivative from those of Central America:

> The culture history of North America was that of steady degeneration in the material arts and crafts (p. 36).

Because maize cultivation can with reasonable certainty be traced to Central America, the author holds that *all* culture must have come in a more or less steady stream from the same source (e.g., p. 193).

I cannot too emphatically express my dissent from this proposition, which substitutes a naïvely *simpliste* view for the demonstrable facts of culture history. The fact that maize spread from Central America implies nothing whatsoever as to the origin of other cultural elements, each of which must be examined for itself. When a higher and a simpler culture come into contact, the borrowing is not altogether in one direction: the American Indians borrowed iron tools, horses, fire-making apparatus from the Caucasian invaders, but the latter borrowed maize, the potato, and tobacco. Thanks to Dr. Laufer, we know that the Chinese, their general superiority notwithstanding, borrowed feature upon feature from ruder peoples. To return to the New World, we find everywhere—*pace* Mr. Perry—an adaptation to local conditions impossible without some degree of that inventiveness which he implicitly denies. Sometimes, as in the case of Californian basketry, we can find an unusual technological development that cannot be derived from without because it exists nowhere else. How *could* techniques of hunting and fishing or food-preparation that are locally rooted (say, the South American manioc or the Californian acorn complex) be borrowed from other areas? Assuredly, a higher culture is likely to borrow to a lesser extent than the ruder culture with which it comes into contact. Yet even in material things we have seen that this does not exclude diffusion in the reverse direction, while custom and belief are less likely to be affected for the obvious reason that superiority in these phases of social life is not nearly so obvious. It is indeed contended that the splendor of a superior technological civilization will automatically inspire the simple peoples with an admiration for all the associated features, but the American testimony is clearly contradictory to this thesis. In short, wherever we examine the actual history of an area in detail, we discover complexities little dreamed of by those who arrogate to themselves the title of "historical" anthropologists. The Sun Dance or the system of military societies in the Plains is not primarily a fixed combination of elements disseminated from a single center, but an accretion of traits originating in diverse tribes, some of them of relatively simpler status. A study of Crow art suggests that its beadwork has been strongly influenced by Dakota patterns, while its rawhide decoration bears the stamp of Shoshoni contact; the Crow, in other words, have borrowed from both a somewhat more complex and a somewhat ruder people. There is no royal road to culture-history.

Reverting to Mr. Perry, I must regretfully register the verdict that his work, revealing as it does unfamiliarity with both ethnological theory and ethnographic fact, represents nothing more than the well-meant but futile efforts of the proverbial iconoclast.

ROBERT H. LOWIE

EUROPEAN PREHISTORY

Ancient Man in Britian. DONALD A. MACKENZIE, with Foreword by G. ELLIOT SMITH. New York: Frederick A. Stokes Co., 1923. Pp. XII 257, XVII pls.

Ancient man is a subject that has many approaches; it is a vortex towards which are carried able men in many related fields, and each leaves his contribution often very helpful, especially to students in the field from which the author himself momentarily emerged. Geologists, paleontologists, zoologists, surgeons, classicists, and folklorists have all tried their hand with varying degrees of success and all have had a following; so that interest in the antiquity of man is greater at present than it ever was before.

As author of *Egyptian Myth and Legend, Myths of Crete and Pre-Hellenic Europe*, and *Color Symbolism*, Mr. Mackenzie approaches the subject of ancient man from the side of mythology and folklore. The prehistoric archeologists who wish to know more about these two subjects would do well to read Mackenzie's *Ancient Man in Britain;* on the other hand, to those who want to know more about man's organic and cultural evolution, the work may prove to be disappointing. The first chapter, "Britons of the Stone Age," seems to ignore everything earlier than the Neolithic. The Paleolithic does appear, however, in the second chapter, "Earliest Traces of Modern Man." The Piltdown discoveries are dismissed with about three lines; two of these occur in the third chapter which is devoted largely to Aurignacian man, especially the skeleton found at Paviland (Wales). The author classes Mousterian as Lower Paleolithic and is inclined to believe that the horse was domesticated in Paleolithic times, a view not supported by the evidence.

A good deal of space is rightly devoted to Britain's trade connections with the continents of Europe and Africa, which are discussed under such chapter headings as "Shell Deities and Early Trade," "Ancient Mariners Reach Britain," "Neolithic Trade and Industries," "Metal Workers and Megalithic Monuments," and "Celts and Iber-

ians as Intruders and Traders." In this connection the author believes that the canoe found embedded in silt of the river Clyde twenty-five feet above the present sea-level, may have been left there by Azilian traders; it had a plug of cork which could have come only from Italy, southern France, or Spain.

The author does not care for the system of prehistoric classification now in general use; he would scrap such terms as "Paleolithic," "Neolithic," and "Bronze" and "Iron Ages." For the first he would substitute "Pre-Agricultural Age" with two sub-divisions: (a) Reindeer Age with Aurignacian, Solutrean, and Magdalenian industries; (b) Early Red Deer Age with Azilian, Tardenoisian, and Maglemosean industries. His "Early Agricultural Age" would include: (a) Pre-Celtic Age with Neolithic, copper, and bronze industries; (b) Celtic Age with bronze, iron, and enamel industries. Finally his "Romano-British Age" would link the prehistoric with the historic. The author does not seem to be aware of the fact that representations of the red deer have been found in more paleolithic stations than have those of the reindeer; and representations of the horse occur in more stations than do those of the red deer. Why not the "Equidian Age, then, instead of the "Reindeer Age"? This new system apparently leaves entirely out of account the ages which preceded the Upper Paleolithic: Eolithic, Pre-Chellean, Chellean, Acheulian, and Mousterian—unless perchance the author intends to retain these despite the fact of their being based on lithic industry.

GEORGE GRANT MACCURDY

La Tène, Monographie de la station publiée au nom de la commission des fouilles de La Tène. PAUL VOUGA. 4to., 169 pp., 50 pls., and 2 plans. Leipzig; Karl W. Hiersemann, 1923.

La Tène was an important stronghold during the second Epoch of the Iron Age and has given its name to that Epoch. The station, discovered in 1858, is situated on the river Thielle at the point where it flows out of Lake Neuchâtel. Explorations, systematic and otherwise, were carried on at various times; the last, covering the period from 1907 to 1918, was begun under the supervision of W. Wavre and completed by the present author. Among previous explorers there should be mentioned F. Schwab, E. Desor, V. Gross, F. Borel, and Émile Vouga. The rich and characteristic finds made by Schwab and Desor led Hildebrand in 1874 to choose La Tène as the type

station for his second Epoch of the Iron Age. These two early explorers had to fish for what they recovered. The correction of the waters of the Jura, carried on from 1868 to 1881, resulted in the lowering of the water level in the lake by 2 m. (6.56 ft.); this brought the site above water level and facilitated the excavations undertaken by Émile Vouga, who found the piles of two bridges across the river Thielle and the piles of many buildings.

La Tène has been the subject of many memoirs and shorter papers. The present author has set himself the task of completing in the light of the recent excavations the work so well begun by Schwab, Desor, and his own father, Émile Vouga, to whom the volume is dedicated. An idea of its importance may be gathered from the author's estimate that some 2,600 objects from La Tène have found their way into various museums; the principal collections are at Neuchâtel, Bienne, Berne, Geneva, and Zürich. They consist, for the most part, of weapons both offensive and defensive. Of swords alone Vouga can account for 166, a figure which does not include those sold by dealers to private individuals; this number becomes all the more impressive when one recalls that for the whole of France Déchelette was able to list only 410 swords and daggers belonging to the same period.

The presence of arms of all sorts, the strategic position of the place, the absence of evidence suggesting a place of manufacture, as well as the absence of feminine apparel and of objects pertaining to family life, have led Vouga to the conclusion that La Tène was a fortified emporium (*entrepôt*) occupied by the military.

The fifty photogravure plates display a series of objects so carefully selected and artistically arranged as to form an ideal substitute for a collection of originals.

GEORGE GRANT MAC CURDY

La Touraine Préhistorique. LOUIS DUBREUIL-CHAMBARDEL (preface by CAMILLE JULLIAN, membre de l'Institut). 4to., 143 pp. 63 ills., 2 maps. Paris; Librarie Champion, 1923.

The author has made a laudable effort to give one an idea of the whole of prehistory as revealed by finds in the Touraine. The region in question is best known through the famous Neolithic flint quarries and workshops of Grand-Pressigny (Indre-et-Loire), known since 1863. On account of its quality and attractive color, Pressigny flint became an important article of Neolithic commerce. Thanks to its

exceptional color (beeswax), the extent of the trade in Pressigny flint can easily be traced geographically. Examples have been found in 443 communes of France; they have also been reported from Belgium, Switzerland, and Italy. Traffic in this flint does not seem to have existed prior to the Neolithic Period, for it has never been found in Paleolithic stations, even those near by such as the Mousterian cave of La Roche-Cotard near Langeais and the caves of the Layon valley in Anjou. If the Paleolithic population made use of this flint, and there are surface indications that they did, it was for local consumption only. The author quotes Saint-Venant as authority for the statement that commerce in Pressigny flint persisted into the Bronze Age, at least through the first part of it; evidence for this is afforded by the dolmens in Brittany and the Cévennes, also in a number of lake villages of Switzerland including Fenil and Sutz in Bienne and Saint-Blaise (Neuchâtel).

As far as the Paleolithic Period is concerned, the Touraine offers very little except surface finds and these lack the value attached to finds made *in situ*. The only Paleolithic deposit *in situ* thus far explored is that in the cave of La Roche-Cotard, which is obviously of Mousterian age.

The author's conclusion is that the Touraine was inhabited during all the great periods of prehistory: Paleolithic, Neolithic, Bronze, and Iron. He admits complete ignorance in regard to certain sections of the region in question and the lack of stratigraphic data, but believes that many of the gaps in our knowledge may yet be filled by sustained systematic effort.

GEORGE GRANT MACCURDY

NORTH AMERICA

Observations on the Ethnology of the Sauk Indians. ALANSON SKINNER. (Bulletin of the Public Museum of the City of Milwaukee, vol. 5, pp. 1—57, 1923).

It should be noted in the beginning that this paper makes no claim to being a monograph, but is merely a series of observations. However, any information on the Sauk Indians, whose ethnology is so little known, is extremely welcome. First we have a brief introduction, then a sketch of the former history of the Sauks, and finally outlines of Sauk ethnology. Much of the information given is both novel and important (especially the lists of gens names and the notes

on the Medicine Dance); and it is presented in a very attractive way. On the other hand the pamphlet undoubtedly suffers from defects, some of which the reviewer (who has been among the Sauk three different times) will point out.

No bibliography is given, presumably because we are told (p. 6) that there is a good bibliography of the Sauk under the article "Sauk," *Handbook of American Indians*, (Bulletin 30, Bur. Amer. Ethnology). It is sad for the reviewer, a member of the Bureau, to be obliged to say that the bibliography given is good for history (though even here one or two references are lacking, e.g., H. W. Beckwith, *The Illinois and Indiana Indians*, 1884), but weak for ethnology.

I do not wish to open anew in detail the old controversy as to who the Mascoutens (p. 7) were; but I should like to point out something that has been absolutely ignored by historians up to date, namely, the Fox word Mäskōtäw[a] (in Jones's transcription; there are slight variants) means "Peoria": see Jones, *Fox Texts*, passim; and note Forsyth (in 1827), *apud* Blair, *Indian Tribes of the Upper Mississippi and the Great Lakes Region*, vol. II, pp. 200, 201 (see also p. 202):

> Mascotins . . . All those different bands of the Ninneway Nation spoke the language of the present Miamies, and the whole considered themselves as one and the same poeple, yet from the local situation of the different bands and having no standard to go by, their language assumed different dialects, as at present exists among the different bands of the Sioux and Chipeway Indians.

I may add that a Fox woman, Mrs. Joseph Tesson (now about 80 years old) years ago told me that the friends of the Mäskōtäw[a] were the Miamies, and that they spoke practically the same language. So I think we must admit that there were two sets of the Mascoutens.

As to the statement (p. 8) "the Muskwaki of Tama, Iowa, are said to preserve traditions of their friendship to the Iroquois," the truth of the matter is that the whole thing was told them by Steward, the author of *Lost Maramech and Earliest Chicago* (1903); so I have been informed by them.

The meaning of the native name for the Sauk has long been under dispute (p. 10). The meaning "Yellow Earth" goes back further than 1885; it certainly is the meaning assigned by Forsyth (1827). Nevertheless I do not think this interpretation can be sustained by a philological investigation. I have briefly given my reasons in *Current Anthropological Literature*, II, p. 234 (which Skinner ignores). But in view of the interest in the matter I may be permitted to recapitu-

late my arguments in a more extended form. The idea that the word means "something sprouting up" is not a very modern "folk explanation" as Skinner implies: see Morgan, *System of Consanguinity*, 1871, p. 288: "Saw-kee, 'Sprouting Up,' the name by which the Sauk call themselves." Note too, Jones's *Fox Texts*, p. 34, footnote 2: asāgīwAgi "they that came forth, or out into the open;" the reference is to their origin when they came from under the water. On this point see the traditional origin of the Sauk (Fox version) given by *Jones*, JAF., 1911, pp. 211, 212. So that this particular meaning is not a modern innovation. Turning now to the philological point: if Sauk meant "Yellow Earth" the native word would be *A'sāwA'ki'A' (plural A'sāwA'kīA'gki') whereas it is not this but A'sāgī$^{WA'}$ (cf. the plural form given by Jones, *Fox Texts*, passim, AsāgīwAgi; a variant with initial ŏ also occurs). The medial ā, not āwA, and the medial g, not 'k, show at once the translation "Yellow Earth" is but a "folk explanation" undoubtedly under the influence of Me'ckwA'ki'$^{A'}$ (plural Me'ckwA'kī'Agki') "Red Earth" or rather "Red Earth people," a rendition which is etymologically justified. On the other hand A'sāgī$^{WA'}$ presents a difficulty to etymological connection with sāgi- "come forth, etc." in having final ^{WA}; not $^{'A'}$; but it is not insuperable. The initial A is no bar; compare AnenōtāWA' "Indian," besides the more common nenōtā"A'. The doublet with initial ŏ is probably to be explained as being of the same nature as a few other doublets of this sort. But this is not entirely convincing. Summing up, we may say that the translation "Yellow Earths" is certainly unjustified by a philological analysis, and that the translation "They who came forth" at the most is only plausible, not definitely proved. [The rendition, "People of the Outlet" is based on the same etymological considerations as "They who came forth."]

The section on Social and Political Organization is, it must be confessed, decidedly weak. The plea is made (p. 11) that as the earlier writers and most of modern times have failed to realize the Sauk and Fox were totally distinct people, it is impossible to utilize much of the information they give because of the confusion of data. It is true that most of the earlier writers do confuse the two; nevertheless at times they distinguish them; and I can not find such data utilized to any extent though Jones, Owen, Busby, Re(o)buck, and Steward give specific Fox information; while Armstrong supposedly gives Sauk information that in point of fact frequently is misinformation. A little care would show Skinner that Morgan in his *Systems of*

Consanguinity really presents Sauk and not Fox data (see p. 288; some schedules are faulty). A little ingenuity shows also that Morgan is presenting Sauk and not Fox data in his *Ancient Society*. Observe he says (p. 170) that the Sauk and Fox number but seven hundred in 1869. By consulting the Report of the Commissioner of Indian Affairs for that year (see pp. 32, 362, 461) and knowing the political situation, it is impossible to avoid the conclusion that Morgan really referred to Sauk, for the main body of Fox had left Kansas for Iowa long before this time. By comparing the lists of Sauk gentes given by M. R. Harrington (*Sacred Bundles of the Sac and Fox Indians*, pp. 131, 160, 163; Skinner has not discussed this at all), it is highly probable that the list given by Galland (for example, in *Annals of Iowa*, 1869, p. 350) is Sauk, not Fox; this belief is confirmed by comparing the list given by Forsyth, not Marston as Skinner states, as well as an unpublished Sauk list of my own. I add that Skinner could have performed no better service than to have sorted out all the Sauk material from the so-called Sauk and Fox in the scattered ethnological writings wherever practical. His own field work among the Sauk would have forearmed him for the tedious task. As to Skinner's suspicion that Jones's Sauk data may be colored by Fox data, as Jones was a Fox by descent, I do not think this can be maintained: Jones was brought up among the Sauk and his list of Fox gentes contains one at least (Sea) that is almost certainly Sauk and not Fox, and in his grammatical sketch of Fox there are some statements that are certainly false as applied to Fox; it is more likely that Jones's Fox data were colored by Sauk data than the reverse.

The Perch (Ringed Perch) gens given by Forsyth (not Marston) is not probably a personal name (Skinner, l.c., p. 11, 12). Correspondents to this occur in the lists of Galland and Harrington as well as an unpublished Sauk list of my own; and it is the same as no. 5 of Skinner's own list; the varying termination is simply a different way of expressing the idea that certain people belong to such and such a gens; compare Forsyth's Way-me-co-uck [in the Fox dialect Wämigō'ᴀgki'] with Skinner's Wämegoiwisujik, or the former's no. 6 with the latter's 10. And an exact equivalent occurs in Fox text written for me by a person of Sauk descent. This point is referred to by me in the *40th Annual Report of the Bureau of American Ethnology* (now in press). [The word is not translated in the lists of Galland and Harrington; nor have I been able to get a translation of it.] Neither is Bass probably a personal name (Skinner, ibidem): an equivalent is found

in the Sauk lists of Jones and Michelson. I think Morgan's alleged "Bone" gens is not a gens at all, but a band (cf. Skinner's no. 4 in his list of bands, and Jones, *Fox Texts*, p. 34). From the fact that the Morgan's "Big Tree" gens occurs in no other Sauk list of gentes, I have a suspicion that in some way the name of a Kickapoo gens has slipped into his list; at any rate a Tree gens exists among the Kickapoo: see the article Kickapoo, *Bull. 30, B. A. E.*, and Jones, *Amer. Anthrop.*, N. S., 15, p. 355. For a similar reason Galland's Water (not Great Water) is under a similar suspicion. Hall, quoted by Armstrong, *The Sauks and the Black Hawk War*, p. 14 (cf. Drake, *Life and Adventures of Black Hawk*, p. 30) though supposedly giving Sauk data, as a matter of fact so far as his statements can be controlled at all, refers to the Fox and not Sauk. As to Beltrami's statement that the Sauk were divided into four gentes, I presume there is some basis for it as years ago I was told by a Sauk informant that there were really only four important Sauk gentes; unfortunately the informant did not give their names. I do not think in a review I can be fairly expected to straighten out the gentile organization of the Sauk entirely, but I will point out a factor that must be reckoned with, namely, Does the child of a man of another tribe but married to a Sauk woman, belong to his gens or not? The Sauk have male descent; and if the first hypothesis is correct, an alien gens would be introduced with the birth of a male child leaving issue. In other words, under such conditions Sauk gentes would be "movable" and thus the discrepancies of the various writers might be accounted for.[1]

The list of bands (p. 12) is novel and interesting. The list contained in the Sauk manuscripts of the late Dr. Gatschet has three of Skinner's seven, but a few others also. Incidentally I remark that no. 5 Tci'kwoskûk (Tcīgu'ckAgkA' in my transcription) does not mean "Walks-on-the-bank's-edge" but "Sweeps-with-the-foot" and that he did not belong to the Deer gens but Fox gens: see also Jones, *Fox Texts*, pp. 34, 35. I add that William Jones and his father Henry Jones, both of the Eagle gens, belonged to this band, according to the Sauk manuscripts of Dr. Gatschet.

The rules governing membership in the tribal moieties are exactly the same as I have found to hold true for the Fox; but as far as the Sauk are concerned, the rules given are in direct contradiction

[1] In the proofs, I add that without denying the existence of a Buffalo Gens, Skinner's Nänososóskwajĭk really means "those belonging to the Buffalo Society," and not "Those belonging to the Buffalo Gens."

with the rules given by Marston (*apud* Blair, l.c., pp. 156, 157) which agree with the rules given by M. R. Harrington, l.c., p. 131, and also with the rules furnished me years ago by U. S. Grant (deceased, of Fox descent, though he lived among the Sauk). The regulations given by Skinner also do not agree with the ones laid down by Forsyth (*apud* Blair, l.c., pp. 193, 194) which do not agree with those of Marston, etc. [Drake, l. c., pp. 31, 32 evidently has cribbed his information from Forsyth, as can be demonstrated in other passages too; so have McKenny and Hall, *History of the Indian Tribes*, etc. vol. I, p. 117; and so has A. R. Fulton, *Red Men of Iowa*, p. 135.] Armstrong, l.c., p. 16, does not state any definite rules as to which moiety the first child belongs to; neither does Hewitt (based on Jones) in the article "Sauk," *Bull. 30, B. A. E.* It is a thousand pities that Skinner did not work out the disturbing factors in the contradictory statements as far as he was able in the field; as it is, he does not even mention that there is published material on the Sauk moieties beyond his own. The Kickapoo and Potawatomi (Prairie Band) have similar moieties but the information I have received regarding the regulations on membership is not clear, and partly contradictory. But I feel that at some time an exhaustive study of the moieties of the Sauk, Fox, Kickapoo, and Potawatomi will have to be made before the obscurities will be cleared up. In the *40th Annual Report of the Bureau of American Ethnology* I have tried to show Siouan influence; as this matter is too complex to be treated briefly, I may say that Fox Tō'kān$^{\text{DA'}}$ is obviously a Siouan word, and that the emulative rivalry of the Fox dual division agrees partially with that of certain Siouan societies, and ask the reader to wait for the appearance of this long delayed Report for further details.

On p. 15 Skinner quotes his principal informant to the effect that the chieftainship of the Sauk formerly was hereditary in the Fish gens. This is confirmed by data furnished by Jones (*Bull. 30, B. A. E.*, article "Sauk"; Trout and Sturgeon gentes), and the information given me by the late U. S. Grant (see above): Ringed Perch [precise translation?] and Sturgeon, the former on the North side, the latter on the South side; definite localization of the various gentes in the village occurs according to the same authority; and in this we find additional reason for not holding all fish gentes to be really one; the possibility of a phratry must be reckoned with, such as occurs among the Ojibwa of Lac Court d'Oreilles: the various fish gentes can not intermarry but are quite distinct.

The information on adoption into another gens, and the adoption ceremony (p. 15) is well worth while. It goes without saying that we have a close counter part to the latter among the Fox; but I am not sure as to the former.

The description of the naming customs (p. 16) is scanty in comparison with the data furnished by M. R. Harrington, (l.c., p. 160 et sq.), whose work, by the way, Skinner consistently ignores.

Skinner has paid a good deal of attention to personal names (p. 18 et sq.), and both the specific information and the general line of reasoning deserve warm commendation. I have not checked up the lists of the names occurring in the various gentes systematically with names occurring in my unpublished list of names occurring in the corresponding Fox gentes, but I know some, at least, are the same. In one or two cases the rendition of the Sauk names is probably at fault, but only slightly so. By the way, if the brother of Wī'sA'kā'A' is a wolf among the Sauk (p. 24), it is news to me; his death at the hand of underworld panthers is also novel, if true. I wonder if Skinner has not unconsciously mixed up Menomini notions with Sauk ones?

On page 32 it should be noted that Skinner does not tell us whether by uncles and aunts, he means on both sides, on the paternal or maternal side. In the absence of such information we must understand on both sides, which is not ethnologically probable to judge from corresponding Fox practices, and it at least in part directly contradicts my own Sauk information. The general mourning customs of the Sauk correspond closely with the Fox ones. The custom of "Manabus's blanket" occurs also among the Fox, but it is (or rather was) used on certain special occasions only.

The section on Religion is good, and the notes on the Medicine Dance are particularly meritorious. By the way, there is documentary evidence (which is given in the *40th Annual Report of the Bureau of American Ethnology*) to support Jones regarding tree and scaffold burial among the Sauk. The story of the Thunderer captive has a Fox counterpart: see Jones, *Fox Texts*, p. 203; and in fact practically all the spirits, etc. mentioned have. A number of Fox informants state that there is a plurality of souls, which is opposed to the Sauk belief if we follow Skinner. The origin myth of the Medicine dance is practically the same as the two versions (one Fox; one Sauk and Fox, whatever that may mean) given previously by Jones. The word gäkinawatû'pijĭk (p. 51) which is left untranslated

in reality is kâ'kinawātʌpitcigki' and means "those who sit and represent,"—a meaning most appropriate to the context.

It should be noted that the songs used during the moccasin game are not mostly obscene, as stated by Skinner (p. 57). There are plenty which are clean. Among the Fox there are some very indecent songs which sometimes are used during the moccasin game, but not many; nor have I heard them frequently, considering the numerous times I have witnessed the game. I may add that one of the most lascivious Fox songs used in this game, also to my own knowledge occurs among the Missouri Sauks, showing that obscene songs and "smutty" stories among American Indians are not the inventions of white ethnologists, as some have maintained.

There is a point which should be mentioned as bearing on all Sauk words and names cited in the paper: the phonetics are totally inadequate and perplexing beyond belief. Only my knowledge that the combinations -ng- -mp-, and initial sk- are foreign to the Sauk language has enabled me to identify some words, by assuming medial vowels (or an initial one in the case of sk-) have been omitted. Skinner's ˣ is ', and is used partly correctly, partly wrongly; at times it should be used when it is not indicated. I pass over other inaccuracies.

Summing up, we may say that we are very grateful to Skinner for much novel information on Sauk Indians; that the material for the most part is presented in an attractive way; that the paper is not intended as a monograph; nevertheless there is but too plain evidence of hasty composition with the result that documentary sources of information are practically passed over, and there is no serious discussion of the contradictory statements; but the valuable raw material remains.

TRUMAN MICHELSON.

SOUTH AMERICA

Los Principios de la Civilizacion en la Sierra Peruana. MAX UHLE. (Boletin de la Academia Nacional de Historia de Ecuador, vol. I, pp. (1-11,) (1920.)

Origines Centroamericanos. MAX UHLE. (*Ibid*, vol. IV, pp.) (1-6,) (1922.)

Influencias Mayas en el Alto Ecuador. MAX UHLE. (*Ibid*, vol. IV, pp. 205-241, 1922.)

Los Principios de las Antiguas Civilizaciones Peruanas. MAX UHLE. (*Ibid.*, vol. IV, pp. 1-11, 1920.)

Fundamentos Etnicos y Arqueologia de Arica y Tacna. MAX UHLE. (*Ibid.*, pp. 1-99, 1922.)

Civilizaciones Mayoides de la Costa Pacifica de Sudamérica. MAX UHLE. (*Ibid.*, vol. VI, pp. 87-92, 1923.)

In the gradual disentangling during the past generation of the history of Andean civilization, the work of Max Uhle has been of prime importance. Until not so many years ago, Andean was Peruvian and Peruvian was Inca. What might have been pre-Inca was obscure, mysterious, Toltecan. Then the concept of something definitely pre-Inca emerged and attached itself to the ruins of Tiahuanaco. In the development of this idea, Uhle took a leading part. But when others stood still, he pushed on. He defined further regional types, traced their connections, set up a scheme of their sequences, once or twice was able to find substantiation in stratification, for the rest wove the connections ever closer. If as the years went by his scheme seemed to change somewhat, it was because it grew along with knowledge. Others have followed more or less hesitatingly, often not fully comprehending the scheme or the nature of the evidence from which it was derived. There seems not yet to have been an attempt to test and evaluate Uhle's findings as a whole, thoroughly and critically. But more and more of late is there apparent the influence of Uhle's thought and labors in the work of almost everyone concerned with Andean culture; and where somewhat different systems of interpretation have been put forth, the stimulus of Uhle is invariably traceable. The reason is that he was the first student, as regards the area, to combine a knowledge that was both broad and intensive with a clear realization of what the problems of culture history were and how they might be attacked.

It is therefore most gratifying that his work continues unflaggingly and with gradual extension of territory. Of most general interest is his latest chronology (Princ. Antig. Civil. Peruanas, p. 11), which detabulates thus:

150 B.C.-to 50 A.D., Ancon fishing culture; proto-Nazca structures of Chincha and Pisco.

50 A.D.-650, earlier and later proto-Nazca; 50-150, early structures of Pachacamac; 150-650, proto-Lima of Niveria; 150-300, early structures of Moche; Chavin de Huantar; Recuay pottery; 300-650, proto-Chimu; 350-500, monuments of Tiahuanaco; 500-650, style of Tiahuanaco in southern highland.

650-900 prevalence of Tiahuanaco style in S. highland, of Tiahuanaco and Epigonal on S. and C. coast, of early Chimu and Epigonal in N.

900-1100, stylistic decadence in S. highland; older black-white-red pottery in N. highland and C. coast; continuance of older Chimu; early Ica.

1100-1400, later black-white-red in N. highland and C. coast; later Chimu; later Ica style; 1100-1300, Chincha influence to S., including formation of the Inca style at Cuzco and the Chincha-Atacama style at Tiahuanaco, etc.; 1300 on, Inca influence in S., 1400 on in N.

The Arica-Tacna monograph describes and illustrates this sequence of local periods: primitive; Tiahuanaco and Epigonal (600-900); Atacama (900-1100); Chincha-Atacama (1100-1350); Inca (1350-1530).

The papers on Ecuador and the Peruvian Sierra interpret the Marajo style of the mouth of the Amazon as derived from Colombia, with interesting resemblances from the Rio Napo; and the pillar and relief of Chavin de Huantar as directly due to Mayan influences, allied to proto-Nazca, and formative of the classic manner of Tiahuanaco.

The most recent paper, on Mayoid civilization in South America, perhaps goes farthest in stretching interpretation into speculation, but its striking chronological sketch map is interesting and suggestive.

The National Academy of History of Ecuador, in whose series these studies by Uhle appear beside papers by Jijón y Caamaño, Boman, and others, has published so vigorously and intelligently in the past few years that already it rivals any South American institution devoted to archaeology.

A. L. KROEBER.

AFRICA

Excavations at Kerma (Harvard African Studies, vols. v and vi) GEORGE A. REISNER. Peabody Museum of Harvard University, Cambridge, Mass., 1923.

The results of the Joint Egyptian Expedition of Harvard University and the Boston Museum of Fine Arts at Kerma in the Dongola Province are embodied in two stately volumes. Through the excavations carried on from 1913 to 1915 it has come to light that Kerma represents the site of an old Egyptian colony called *Inbw-Amenemhet* (i.e., "the walls (or, fortifications) of Amenemhet") which had developed from an ancient trading-post of the sixth dynasty. At the time of the founding of the trading-post, probably under Pepy I,

the territory was populated by a race belonging to the North African group of peoples, of which the Libyans were apparently members. The Central African negroes had at that time not yet moved northward. The cultural state of the population around the Egyptian colony remained in a state similar to a late neolithic community.

As regards the colony itself, it seems to have received the height of development during the XII. dynasty. The Egyptian local governor and the various other officials sent to this lonely outpost brought with them their entire households, including craftsmen of every description. The latter, surrounded by new experiences in a foreign environment, and confronted with new materials, developed certain industries peculiar to the locality. Interesting and of some historical importance is the fact that Prince Hepzefi, a noble already known for some time from his tomb-inscription at Siut, having been sent to Inbw-Amenemhet by Sesostris I, had died at this place and was buried away from his own country. The Egyptian officials and colonists had fallen into the habit of acquiring and employing a considerable number of negro slaves, both male and female and took into their harems negresses and Nubian women. The mixing of Egyptians, Nubians and negroes in the colony had its marked effects in time, although during the XIIth dynasty the predominance of the Egyptian element was still maintained on account of the continued influx from Egypt, and even in the late Nubian period there remained individuals who retained Egyptian traits. The contacts of the three racial groups tended towards the enrichment of the Egytian arts, such as were practiced in the colony, by the appearance of a certain number of new forms. Cultural changes took place—the most important of which affected the custom of burial, which, in the colony, differed in two points from the Egytian practise of the same period: 1) the use of a bed for the chief body, and 2) the sacrifice of the wives (practises known in Egypt in the archaic period, and still known in Africa at the present time). From various indications, particularly the attitudes of the bodies in the grave and their positions, Reisner comes to the conclusion that the women and slaves did not die by the act of sacrificial executioners, but that they died voluntarily, by the compulsion of traditional duty, the death of suffocation by burial under the earth. The influence of one old negress from Central Africa, according to Reisner, in a harem might have started the so-called *satt*-burial custom in the colony of Inbw-Amenemhet, while the influence of a number of such negresses would have made it epidemic.

During the Hyksos invasion into Egypt it seems that the colony had received apparently the last small accession of newcomers from the north, but soon after the colony had become isolated and remained unsupported from the mother-country. The garrison at this time apparently was besieged, by some unknown enemy, the fort was taken, and the colonists and their households were put to the sword. With the successful attack of the place the occupation of Kash by the Egyptians in the Middle Kingdom had come to an end and the Egypto-Nubian culture, such as had flourished at Inbw-Amenemhet, practically died with the Egyptians who perished in the fort.

The creation of the remarkable Egyptian culture of *Inebuw-Amenemhat* seems to have made no permanent impression on the culture of Ethiopia itself. Whatever traces remained were soon overlaid by the effects of the Egyptian occupation of the New Kingdom, and lost to sight. But in Egypt itself, there are traces of some influence exerted by the culture of Inebuw-Amenemhat, visible even at this distance. Scattered through most of the cemeteries of the Middle Kingdom and the early New Kingdom, are isolated graves equipped with pottery which was evidently made at the southern colony, or in imitation of that pottery. In the tombs of Dynasty XVIII, there is the new and curious rite called *tekenuw*, which appears to relate to the *satt*-burial custom. But over and above this, the common pottery and the faiences of Egypt of the New Kingdom seem to be developments in form and technique, not identical copies, of the Egyptian pottery and faiences of Kerma.

The excavations at Kerma have borne a number of important results, and one would fain know more about the destinies of the ancient colony during the dark ages between the XIIth and the XVIIIth dynasties. Dr. Reisner, in his well-known thorough method, has dealt with his subject in an admirable way, laying under deep obligation all scholars interested in Africanistic studies.

H. F. Lutz.

OCEANIA

Wrecked among Cannibals in the Fijis. A Narrative of Shipwreck and Adventure in the South Seas. William Endicott, Third Mate of the Ship *Glide;* with Notes by Lawrence Waters Jenkins, Assistant-Director of the Peabody Museum of Salem. Publication no. 3 of the Marine Research Society, Salem, Massachusetts, 1923. 76 pp., 13 pls.

Mr. William Endicott's plainly-told, but fascinating account of the events which befell the crew of the ship *Glide* in Fiji more than ninety years ago is introduced by six pages of prefatory matter by Mr.

Jenkins. Copious footnotes by the same gentleman are scattered throughout the work, rendering exact data on points which the author of the journal was scarcely in position to obtain at the time the various events took place.

Apart from the general interest which attaches to Endicott's narrative, there is much of anthropological interest about it. He records phases of culture which it is impossible for the anthropologist to observe. His vivid account of a cannibal feast, which he went ashore purposely to witness, is his finest contribution to anthropological record.

To be sure, the anthropological reader yearns for details concerning numerous things which Endicott saw and dismisses with a word; for unlike William Mariner of Tongan fame, he neither possessed the time nor the interest to leave to posterity a similar account of the Fijians. Nevertheless, the reader cannot but feel grateful to him that he snatched as much time as he did from the arduous duties of securing cargoes of beche-le-mer. It is to be hoped that similar journals of the past century, still lying in manuscript, will ultimately be published.

E. W. GIFFORD.

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BRIEF COMMUNICATIONS

PERSONAL NAMES AMONG THE SARCEE INDIANS

By E. SAPIR

IN the summer of 1922 the writer studied the language of the Sarcee Indians, a small Athabaskan group now living on the Sarcee Reserve, near Calgary, Alberta. A set of personal names was secured in the course of the work from John Whitney, a half-breed, who was the source of the texts and grammatical material as well. As personal names reflect the culture of their bearers, it seems worth while to give these names and their literal translation. They will be listed under the current names of the Indians to whom they belong. Where an individual has or has had more than one name, they are grouped together under a single heading. In some cases an Indian possesses a nickname or two nicknames over and above one or more proper personal names; these too are listed. A few remarks on the nature of the Sarcee names follow the list.

Phonetic Key

The phonetic symbols used in this paper are as follows:

VOWELS: *a*, as in German *Mann;* *ɑ*, as in English *but;* a, like *ɑ* but with distinct velar resonance marked in many cases by preceding *γ*-glide; *ɪ*, as in English *bit; u*, as in English *full; o* (variant of *u*), as in French *eau; ai*, a*i*, a*u*, *ui*, diphthongs with half-long first vowels.

QUANTITY AND TONE: *a·* (and similarly for other vowels), denotes long vowel; *a·ᵃ* (and similarly for other vowels), denotes long vowel on level tone with slight rearticulation (these vowels and those with inflected tones result from contraction of two vowels); *á*, short vowel with high tone; *à*, short vowel with low tone; *a*, short vowel with middle tone; *â·*, long vowel with fully falling tone; *ǎ·*, long vowel with fully rising tone; *ā·*, long vowel with tone rising from middle position to high; *ą·*, long vowel with tone falling from middle to low; *ā·*, long vowel with tone falling from high to middle.[1] Note that many middle tones are secondarily dropped high tones or raised low tones.

[1] Owing to typographical difficulties I have not been able to use the proper symbo's for rising tones and for half-falling tones. I have also had to put the acute and grave accents after, instead of over, the vowel in certain cases.

CONSONANTS:

Labial: *m*, nasal

Alveolar Stops: *d*, intermediate (i.e., gentle surd); *t'*, strongly aspirated surd; *t'*, glottalized (of "fortis" type); *n*, nasal

Guttural Stops (mid-palatal position): *g*, intermediate; *k'*, aspirated as above; *k'*, glottalized as above

Guttural and Palatal Spirants: *x*, voiceless velar (before a); *γ*, voiced velar (before a); *x*, voiceless guttural (mid-palatal position; before *a*, ɑ); *γ*, corresponding voiced guttural (before *a*, ɑ); *xw* and *γw* (also completely labialized to *w*), labialized forms of *x* and *γ*; *χ*, as in German *ich*; *y*, corresponding voiced spirant, approximately like English *y* of *yet* but more truly spirantal

Alveolar Sibilants: *s*, unvoiced, as in English *sit*; *z*, voiced; *dz*, *ts'*, *t's*, corresponding intermediate, aspirated, and glottalized affricatives

Palatal Sibilants: *c*, unvoiced, as in English *she*; *j*, voiced, as in French *jeu*; *dj*, *tc'*, *t'c*, corresponding intermediate, aspirated, and glottalized affricatives

Laterals: *l*, as in English; ʟ, spirantal and unvoiced; *dl*, *tɬ*, *t'*ʟ, corresponding intermediate, aspirated, and glottalized affricatives

Laryngeal: ', glottal stop; *h*, as in English; ', perceptible breathing after certain final vowels (here used only where of etymological significance)

Quantity: consonantal lengthening (e.g. *-s·-*) indicated only where it results from contraction of two consonants. Between vowels, particularly after short vowels, all consonants are more or less lengthened (e.g. *dɯdɪ-* is to be read *dɯd·ɪ-*, *dɯt-dɪ-*).

Sarcee Names

YOUNG-BULLHEAD:

1. *t'*ʟ*ùgà gûtc'àwu* "prairie somewhere-big-the," i.e. Big-Prairie.

2. Nickname: *ì·^{i}k'àyî·nɪtc'*ɪʟɪ, contracted from *ì·^{i}k'àyí ɪnɪtc'*ɪʟí "(buffalo-)bull he-is-lame-the," i.e. Lame-Bull.

3. Nickname: *mɪts'ì dì·^{i}k'a·l*, "his-head it-is-white," i.e. White-Headed.

THE-SARCEE:

4. *dɑdɯcá yi·ʲt'*ʟaʟ, "antelope he-runs," i.e. Running-Antelope.

5. *gù' 'dɬ'ina·* ,"with-them (indef.) he-does-so-diminutive," i.e. He-is-a-gambler ("to do with people" is Sarcee idiom for "to play with people, to gamble").

6. Nickname: *ts'ô·t'ìnà*, "Sarcee" (*-t'ìnà*, "such and such a tribe, people"; *ts'ô·-* is no longer understood by the Sarcee).

CROW-COLLAR:

7. *t'sá·s·i mìzálá·*, "crow his-neckwear-the," i.e. Crow-Collar.

8. *tc'á mì·ʲza*, "rain his-child," i.e. Thunder's-Child ("rain" has in Sarcee also the derived sense of "thunder").

9. *ɑdjìnà'*, "something-he-sings-the," i.e. Singer.

TWO-YOUNG-MEN:

10. *ak'ìnâ·sgà·ᵃk'a*, contracted from *ak'ìná isgà·ᵃk'á*, "two-person youth-plural," i.e. Two-Youths.

11. *t'àsìdá·ᵃ*, contracted from *-dá-i*, "on-top (of a horse)-he-sits-the," i.e. Rider.

12. *t'sìk'uwa nìtʟána·*, "women many-the," i.e. Many-Womaned.

RUNNING-IN-THE-MIDDLE:

13. *t'azìk'a da·ni·ʲctc'ò'*, contracted from *t'azìk'a da·ni ictc'ò'*, "middle-on gun he-has-seized-it," i.e. Captured-a-gun-in-the-middle."

14. *mɑdzi·γà·ᵃct'ci·yìt'ádzí*, contracted from *mɑdzi·γà' àct'ci·yìt'ádzí*, "his-ears are-cut-apart-the," i.e. Split-Ears.

ONE-SPOTTED:

15. *tc'àcdì dì·ʲdlici*, (sibilants of first word assimilated from *ts'àsdì*), "above he-is-spotted-the," i.e. Single-Spotted-Pinto.

16. *dá·nik'à nàzɪ'*, "gun-on he-stands," i.e. He-stands-on-a-Gun.

THE-OTTER:

17. *nàmiyi t'càdìt'a·*, "otter wonderful-he-is-the," i.e. Sacred-Otter.

18. Nickname: *ɑc'ɪ k'àt'ìnà*, "wood male-he-is-the, wood-man," i.e. Carpenter.

FOX-TAIL:

19. *tc'àyɪ·ná·γá tc'à*, (first word assimilated from *ts'àyɪ·ná·γá*), "Kit-Fox-Tail."

20. *ɪ·ʲk'ayi yisk'a·*, "(buffalo-) bull rump-fat-the," i.e. Bull-Fat.

21. Nickname: *nɑk'wàt'ci·γà·*, "he-is-short-diminutive-the," i.e. Shorty.

TWO-GUNS:

22. *ak'ɪ·^{i} da·ni·^{i}ctc'ò'*, contracted from *ak'ɪyɪ da·ni ictc'ò'*, "two gun he-has-seized-it," i.e. Captured-Two-Guns.

23. *dzilaγa k'ò'*, "daylight-point-at (=heaven) fire," i.e. Heaven-Fire.

24. *ɪt'sɪs 'ɪlà'*, "one's-knee-joint fringing-the," i.e. (Buffalo's)-Fetlock.

TONY:

25. *moγwò'*, "his-teeth," i.e. Toothed.

DOG:

26. *tɬɪt'ca*, "dog-the," (relative form, cf. possessed form *-lɪt'cà'*); also called *tɬɪ*, "Dog" (absolute form) for short.

27. *gà·^{a}djɪt'ɪ· ts'ô·t'ɪnà*, "Blackfoot-real (=Blood) Sarcee," i.e. Blood-Sarcee.

YELLOW-LODGE:

28. *màγa t'ágùsts'uwa*, "his-tent on-top-somewhere-it-has-been-painted-yellow-the," i.e. Having-a-Yellow-Painted-Tent.

29. *mìnɪst'ɪγā·gùnilìnà*, contracted from *mɪnɪst'ɪγà' ágùnilìnà*, "his-protective-charm it-is-good-the," i.e. Having-a-Magnificent-Charm.

30. Nickname: *xàní*, "Cow" (originally "buffalo," but now "buffalo" is termed *xànɪt'ɪ·*, "cow-real, buffalo-real").

WOLF:

31. *maγazìnà'*, "Wolf" (possible etymological analysis: "his-fur-dark-the," but *-zɪn-* "black" is no longer freely used in Sarcee, though common elsewhere in Athabascan, Ath. **-jĕn*).

32. *t'cá·^{a}c·ɪ tc'ák'a·*, assimilated from *t'sá·^{a}s·ɪ tc'ák'a·*, "crow-ribs-the," i.e. Crow-Ribs.

33. *ɪ^{i}k'àyɪ mìnìsgánɑ̀·*, contracted from *-gáni-ɪ*, (buffalo-) bull his-shield-the," i.e. Bull-Shield.

BULL-COLLAR:

34. *ɪ·^{i}k'àyɪ mìzálɑ̀·*, "(buffalo-) bull his-neckwear-the," i.e. Bull-Collar.

35. *tc'ɑ́ t'ácdjɪdjɪ*, (first word assimilated from *ts'ɑ́*), "stone it-is-painted-over-the," i.e. Painted-Stone.

36. *dɪ·^{i}dáγá yɪ·^{i}t'ɪaɪ*, "(buffalo-) calf he-runs," i.e. Running-Calf.

CROW-CHILD (Cree Indian living on Sarcee reserve):

37. *t'sá·^{a}s·ɪ mɪ·^{i}za*, "crow his-child," i.e. Crow-Child.

SARCEE-WOMAN (a man):

38. *gù' dìsts'ìdi*, "them-with he-charged-the," i.e. He-who-charged-against (the Enemy).

39. *tc'ì·z k'ús*, "Duck Neck."

40. *ts'ô·t'ɪnà t'sɪk'á*, "Sarcee-Woman."

DICK STARLIGHT:

41. *ìst'áni·^{i}ctc'ò'*, contracted from *ìst'áni ictc'ò'*, "it-has-been-feathered-the (=arrow) he-seized-it," i.e. Captured-an-Arrow. This name is generally pronounced with *-tc'à'* instead of *-tc'ò'* in ordinary speech. Such an example indicates how little the etymology of even the most transparent name need be present in the mind of the Indian.

PAT GRASSHOPPER:

42. *mìk'à dì·^{i}k'ázi*, "his-foot it-is-red-the," i.e. Red-Foot.

43. *màs mɪk'á·^{a}t'ùnì*, "knife it-is-broken-off-the," i.e. Broken-Knife.

44. Nickname: *dzɪLà'*, "rough-the," Roughy.

45. Nickname: *t'cújà'*, "cylindrical-the," Longy.

TOM MANY-HORSES:

46. *ts'ô·st'Lá*, "Gopher" (literally, "he has run into a hole").

TOM HEAVEN-FIRE:

47. *ástsʻá' t'ànìsda·*, "first on-top-he-sat-down-the," i.e. First-to-Mount (his Horse).

48. *nìdaγá·^{a}* "prairie-chicken-the," i.e. Prairie-Chicken.

BOB LEFT-HAND:

49. *t'sist'àγà'*, "Mink."

50. *ts'à mɪzálá·*, "beaver his-neckwear-the," i.e. Beaver-Collar. It is worth noting that *ts'à* (Ath. **tc'à·'*) is no longer freely used in Sarcee for "beaver," perhaps because of its phonetic identity with *ts'à*, "excrement" (Ath. **tc'àn'*). For "beaver" they now say *mɪtc'à dìk'àdì*, "his-tail it-is-broad-the, the broad-tailed one."

51. Nickname: *t'Lɑyɪsi gùdlɪnɪ*, "left somewhere-self-be-the," i.e. Left-handed.

DODGING-A-HORSE:

52. *dɑlìt'cà' nágáts'ì·t'La·*, "his (own)-horse he-runs-behind-for protection-the," i.e. Running-behind-his-Horse-for-Protection.

53. *gútLâ·t'sɪnɪst'ùwu*, contracted from *gútLá ìt'sɪnɪst'ùwu*, "many-times one-has-shot-an (arrow)-at-him-the," i.e. Often-Shot-at (in battle.)

PETER BIG-PLUME:

54. *t'áγá t'sinɪsxàt'ʟà*, "in-the-water one-has-thrown-him-the," i.e. Thrown-in-the-Water.

55. *mɪsí mĩ·^{i}za*, "owl his-child," i.e. Owl-Child.

JACK BIG-PLUME:

56. *mɪsî·t'àgɪ·*, contracted from *mɪsí it'àgɪ·*, "owl he-is-flying-the (past)," i.e. Owl-which-had-Flown-away.

57. *k'a·tc'ádjɪγà'*, "new-young-(buffalo-)bull," i.e. Recently-Turned-Bull. *tc'ádjɪγà'* is a "two (or three) year old buffalo bull."

DICK NIGHT:

58. *mɪlɪt'cak'á·^{a}t'ágùdlĩ·* (final vowel rises from middle to high), contracted from *-k'á át'ágùdlɪhɪ*, "his-horse-plural it-is-bad-the," i.e. Bad-Horses, Owning-Bad-Horses.

JIM STARLIGHT:

59. *màγazɪnà náyɪst'ʟɪdzɪγa*, "wolf he-is-lean-diminutive-the," i.e. Lean-Wolf.

60. Nickname: *t'ásgɪ·'na'*, "Policeman," said to refer to the red jackets of the Northwest Mounted Police. Jim Starlight is the policeman of the reserve.

JOE BIG-PLUME:

61. *dɪ·^{i}k'ázâ·snã̂·*, contracted from *dɪ·^{i}k'ází ɪsna-ɪ*, "it-is-red-the he-eats-the," i.e. Eating-Red-Things.

JOHN WATERS (properly HEAD-ABOVE-WATER):

62. *dɪmázàk'a t'anánɪsda·*, "his (own) -knife-on on-top-again-he-sat-down-the," i.e. He-who-again-Mounted-his-Knife.

63. *na·^{a}t'ʟúwú dɪcgàc*, "he-weaves-something-the (=spider) he-is-black," i.e. Black-Spider.

MANY-WOUNDS:

64. *gutʟa dɪ·^{i}xádɪk'àdɪ*, "many-times he-has-been-wounded-the," i.e. Often-Wounded.

PETER MANY-WOUNDS:

65. *ɪ·^{i}k'àγɪ t'a·ɪk'ɪ*, "(buffalo-) bull three," i.e. Three-Bulls.

66. Nickname: *súlá'*, "Woolly."

CHARLIE CROW-CHIEF:

67. *dɬɪt'càk'a t'anánɪsda·*, "his (own) -horse-on on-top-again-he-sat-down-the," i.e. He-who-again-Mounted-his-Horse.

68. *tɬɪdáγà·*, contracted from *tɬɪdáγà'-ɪ*, "dog-lip-hair (=whiskers) -the," i.e. Dog-Whiskers.

OSCAR OTTER:

69. *tɬa·^{a}t'â· t'sɪnás'ɪnɪ*, "everyone one-looks-at-him-the," i.e. Looked-at-by-Everyone.

GEORGE BIG-CROW:

70. *t'sudá· k'àt'inà*, "boy male-be-the," i.e. Boy-Man, Manly-Boy.

PAT GRASSHOPPER (nicknamed SLIM):

71. *nìdáγát'áγā·*, contracted from-*t'áγà'-i*, "prairie-chicken-wing-the," i.e. Prairie-Chicken-Wing.

JOHN BULL-COLLAR:

72. *nɪst'sinàs·i yɪ·^{i}t'ɪáɪ*, "it-blows (=wind)-against he-runs," i.e. Running-against-the-Wind

GEORGE BIG-PLUME:

73. *dɪná nɪts'ɪt'ɪɪγa*, "person he-is-small-diminutive-the," i.e. Small-Man.

ANTHONY DODGING-A-HORSE:

74. *dɪ·^{i}k'álɪk'a t'anɪsda·*, "he-is-white-on on-top-he-sat-down-the," i.e. He-who-mounted-a-White-Horse.

SLEIGH (Cree Indian living on Sarcee reserve):

75. *ɪt'sudás·ùɪɪ*, "one-is-dragging-a (sleigh)-the," i.e. What-is-dragged-along, Sleigh.

BIG-KNIFE:

76. *mɪmájà' nɪɪc'awú*, (first word assimilated from *mɪmázà'*) "his-knife it-is-big-the," i.e. Big-Knife.

77. Nickname: *mázà'* "Knify," abbreviated from 76.

78. *mɪlɪt'càk'a ɪɪanɪ*, "his-horse-plural many-the," i.e. Having-many-Horses. This name refers to a fact, Big-Knife having by far the largest herd of horses on the reserve.

DAVID ONE-SPOT:

79. *ɪs'ágó·záγák'ā·*, contracted from *-k'à'-i*, "weasel-foot-the," i.e. Weasel-Foot. Literally translated, "weasel" is "he-is-stone-smoothed-diminutive-the," i.e. "the one whose skin is smoothed (white) with a stone."

80. Nickname: *mizì nidùwà*, "his-name it-is-not," i.e. Having-no-Name. This name is also abbreviated to *mizì* (cf. absolute *mizí'* "his name").

JOHN WHITNEY (also called JOHN ONE-SPOT):

81. *dɪt'áni yɪ·^{i}t'ɪaɪ*, "he-flies-off-the (=eagle) he-runs," i.e. Running-Eagle.

WOLF-CARRIER (deceased):

82. *màγázinà·^{a}γáɪí*, contracted from *màγázinà' ɪ·^{i}γáɪí*, "wolf he-is-carrying-the," i.e. Wolf-Carrier.

BIG-BELLY (deceased chief):

83. *k'ût'àdì·^{i}t'ʟátc'i*, "down-hill-he-is-wont-to-run-the," i.e. Always-Running-Down-Hill.

LIZARD (deceased):

84. *ná·^{a}t'ìnígá*, "Lizard" (relative diminutive in form, but etymology uncertain; connected by John Whitney with *t' ìná* "trail").

PIEGAN-BOY (deceased):

85. *t'sìdâ·sgànát'sìdã̆·*," Piegan-persons-boy-the," i.e. Piegan-Boy.

ROLLING-HILLS (deceased):

86. *gúdìt'cûlà'*, "country-is-rolling-the," i.e. Rolling-Country.

BULL-HEAD (deceased):

87. *ì·^{i}k'á·ts'ì·^{i}*, contracted from *ì·^{i}k'àyíts'ihí*, (buffalo-) bull-head-the," i.e. Bull-Head.

EAGLE-RIBS (deceased):[2]

88. *dìt'ánitc'ák'ã̆·*, contracted from *-tc'ák'à'ì*, "eagle-ribs-the," i.e. Eagle-Ribs.

LITTLE-CHIEF (deceased):

89. *xàk'ídjìts'ít'ʟá*, "Chief-Little."

LITTLE-BEAR (deceased):

90. *nìnìγáts'ít'ʟá*, "Bear-Little."

SPOTTED-EAGLE (in origin legend):

91. *dì·^{i}t'áni dì·^{i}dlɑɑ*, "eagle he-is-spotted-the," i.e. Spotted-Eagle.

CROW-FLAG (in origin legend):

92. *t'sá·s·i xà·^{e}yɪs'a·*, "crow he-has-a (pole) -sticking-out-the," i.e. Having-a-Pole-sticking-out (of his painted tent) -with-a-Crow (for a flag).

EATING-TREE-TOPS (a woman):

93. *ɑɑc'ɑ́ɑ́γà gûsnã̆·*, "tree-point-the somewhere- (she) -eats-the," i.e. Eating-Tree-Tops.

STARLIGHT (a woman):

94. *ìc·ùtc'ì·^{i}*, "it-is-wont-to-shine-like-a-star-the-the," i.e. She-who-Twinkles-like-a-Star.

Comments on the Names

These names show clearly how well the Sarcee had assimilated the culture of the other Plains tribes with which they came into con-

[2] The Sarcee Indian from whom Dr. Goddard obtained most of his Sarcee text material. See P. E. Goddard, "Sarsi Texts," University of California Pub. in Am. Arch. and Eth., vol. 11, no. 3, 1915, p. 191.

tact. Almost any of them might have been borne by a Blackfoot Indian. Some of them may, in fact, be duplicated among the Blackfoot. Captured-Two-Guns or Two-Guns (no. 22), for instance, seems to bear the same name as the Two-Guns that Dr. Wissler has made the hero of a recent Blackfoot sketch,[3] though it is not in the least likely that there is any direct connection between these two names. It is enough that they grew out of the same cultural soil and were patterned on a model common to the Sarcee, the Blackfoot, and other tribes of the region. We do not know enough about the typical method of Athabaskan nomenclature to compare the Sarcee names with the type or types which they must have gradually displaced. A set of names recently obtained from a Kutchin Indian of Fort Yukon, Alaska, suggests strongly that one of the most common types of Athabaskan names is the sobriquet, a name referring to some personal peculiarity, generally laughable, of the bearer and which is avoided in his presence because of its unflattering implication. Some interesting linguistic evidence on this point will be touched on later. Some of the Sarcee names, particularly the nicknames, are of this type, but the majority refer to the more important facets of Plains life. They imply the use of the horse, the economic predominance of the buffalo, warlike adventures, and the acquirement of sacred "medicines."

Perhaps it is worth noting that not a few of the Sarcee names, for instance "Against-the-wind he-runs" (no. 72), "Tree-tops the-one-who eats" (no. 99), and "On-his-knife the-one-who-again-mounted" (no. 62), consist of more than a single word, that is, are phrases rather than true compounds or simple word-syntheses. Their form would almost suggest that they were somewhat cumbrously translated from equivalent but more compact terms in other languages. In Algonkian, to which both Western Cree and Blackfoot belong, the possibilities of synthetic structure within the limits of a well-unified word are probably greater than in Athabaskan. Hence many Sarcee names seem better adapted to these languages than to Sarcee itself. However this may be, it is likely to be of significance that all the Kutchin names obtained are single words, including, of course, true compounds.

The Sarcee names here listed may be grouped into a number of fairly distinct types, though quite a number of them belong to more

[3] See "Smoking-star, a Blackfoot Shaman" (in "American Indian Life," edited by Elsie Clews Parsons, 1922), p. 46.

than one type. Some of these types are much better represented than others.

I. *Names of Geographical Reference:* Big-Prairie (1); Rolling-Country (86).

II. *Tribal Names:* Sarcee (6); Blood-Sarcee (27); Sarcee-Woman (40); Piegan-Boy (85).

III. *Animal and "Medicine" Names.* These are grouped together because it is impossible to tell, without further information, whether a simple animal reference like "Mink" is concerned with a vision or not. Needless to say, the supernatural experience referred to is not necessarily an incident in the life of the bearer but may belong to the giver of the name. This also applies to names referring to war adventures or other incidents. Animal and "medicine" names may be conveniently subdivided into three groups. (a) *Simple or Qualified Animal Names:* Dog (26); Cow (30); Wolf (31); Gopher (46); Prairie-Chicken (48); Mink (49); Lizard (84); Little-Bear (90); Black-Spider (63); Lean-Wolf (59); Running-Antelope (4); Running-Eagle (81); Owl-which-had-flown-away (56); Dog-Whiskers (68). (b) *Names referring to "Medicines" and to Animals or Parts of Animals considered as "Medicine":* Sacred Otter (17); Wolf-Carrier (82); Crow-Collar (7); Beaver-Collar (50); Bull-Collar (34); Bull-Shield (33); Crow-Flag (92); Kit-Fox-Tail (19); Crow-Ribs (32); Eagle-Ribs (88); Duck-Neck (39); Prairie-Chicken-Wing (71); Weasel-Foot (79); Thunder's-Child (8); Crow-Child (37); Owl-Child (55); Painted-Stone (35); Having-a-Magnificent-Charm (29); Having-a-Yellow-Painted-Tent (28); Heaven-Fire (23); Starlight (94); Big-Knife (76). Note the patterns "Crow-Collar" and "Owl-Child" as those most typically referring to the manitou relation. (c) *Buffalo Names:* Lame-Bull (2); Bull-Fat (20); Buffalo's-Fetlock (24); Running-Calf (36; cf. a, nos. 4, 81); Recently-Turned-Bull (57); Three-Bulls (65); Bull-Head (87); also Bull-Shield and Bull-Collar listed under (b).

IV. *Names referring to Horses and Riding:* Rider (11); Single-Spotted-Pinto (15); Owning-Bad-Horses (58); Having-Many-Horses (78); First-to-Mount (47); He-who-Mounted-a-White-Horse (74); He-who-again-mounted-his-Horse (67). The name He-who-again-Mounted-his-Knife (62) belongs to the "riding pattern."

V. *War Names:* Captured-a-Gun-in-the-Middle(13); Captured-Two-Guns (22); Captured-an-Arrow (41); He-Stands-on-a-Gun (16);

He-who-Charged-against (the Enemy) (38); Often-Shot-at (53); Often-Wounded (64); Running-behind-his-Horse-for-Protection (52).

VI. *Names referring to Incidents or Objects:* Thrown-in-the-Water (54); Running-against-the-Wind (72); Always-Running-Down-Hill (83); Two-Youths (10); Broken-Knife (43); Sleigh (75); Eating-Red-Things (61); Eating-Tree-Tops (93). Some of these are likely to have reference to war or "medicine" experiences.

VII. *Names referring to Personal Characteristics:* He-is-a-Gambler (5); Singer (9); Carpenter (18); Policeman (60); Many-Womaned (12); Looked-at-by-Everyone (69); Manly-Boy (70); Small-Man (73); Little-Chief (89); Having-no-Name (80); Left-Handed (51); Toothed (25); Woolly (66); Roughy (44); Longy (45); Shorty (21); White-Headed (3); Split-Ears (14); Red-Foot (42). Most of the nicknames belong to this type. A great many names of this sort are also used by the Kutchin and Navaho.[4]

There are four names of our list which have a very special linguistic interest. These are:

dziLà'	"Roughy"	(44)
t'cûjà'	"Longy"	(45)
sûlà'	"Woolly"	(66)
mázà'	"Knifty"	(77)

They are sobriquets directly formed with the "relative" and possessive suffix *-à'* (Ath. * *-é'*) from monosyllabic adjectival or nominal stems. Now ordinarily the *-à'*, when suffixed to noun stems as a possessive, better relating, element, requires a possessive pronoun or other possessing stem before the noun which is possessed, e.g. *si-máz-à'*, "my knife" (from *más* "knife"), *si-t'ùw-à'* "my water" and *tłá·s·i-t'ùw-à'* "leaf's water, tea" (from *t'ú* "water"). Adjective stems, unless frequently as the second element of compounds (e.g. *ts'ádziL* "stone-rough, gravel"), required to be preceded by one or more prefixed elements (e.g. *di-dziL* "rough to the feel," *di-t'cúj* "round and long, cylindrical"), i.e. they cannot easily be used as first-position elements. Sobriquets like *mázà'* and *t'cújà'*, therefore, are distinctly peculiar formations and seem to represent an archaic type of form that has survived from the time when the adjective (and verb) stem had a greater mobility than now and when the "relative" suffix (Ath. *-é', *-ɛ, *-ĕ) could be appended to a mono-

[4] See the list of male personal names in The Franciscan Fathers, *A Vocabulary of the Navaho Language*, St. Michaels, Arizona, II, pp. 207 211.

syllabic stem as a sort of particularizing particle without the help of possessive pronouns or other limiting elements.

That these sobriquets are indeed of an archaic type seems to be demonstrated by the fact of their occurrence as independent words in Navaho and Chipewyan as well. Among the Navaho examples given by the Franciscan Fathers are personal names like *yĕ'l-i* "he who is slightly hunchbacked" (Ath. **γél-ĕ*), from *qēL* (i.e. *xɛ·L*) "pack, load," possessive *bi-yael'* "his load" (Ath.* *xĕL*, **mĕ-γél-ĕ*); *ch'ā'h-i* "he with the hat"; *gī'sh-i* "he with the cane"; also clan names like *k'ā'ī* "willow-clan" (Ath. **k'ay-ĕ*) and *yo'ō* "bead-clan" (Ath. **yo-ĕ*). These Navaho names are identical in form with Sarcee nicknames like *máz-à'* "Knify." Chipewyan examples taken from Father Legoff[3] are: *gay-e* "le blanc, Whity" (cf. *de-l-gai* "white" as independent adjective-verb); *douè* (i.e. *duɛ*) "le court, Shorty" (cf. independent *ne-d-douè* "short"); *zenn* "le noir, Reddy" (cf. independent *de-l-zenn* "black"). These Chipewyan nicknames are parallel to our Sarcee *t'cûj-à'*, *sûl-à'*, and *dzɪL-à'*. In Kutchin the final short unaccented vowel dropped, as regularly in this dialect. The resulting monosyllabic adjective forms do not seem to be used entirely alone but require a preceding noun. Forms like *Charlie t'cà·'* "ragged Charlie," *Sarah γo·* "round, plump Sarah," and *Jinny lál·* "sloppy Jinny" are current today. Kutchin forms like *γo·*, *lál·* are regular reflexes of Ath. **γ(w)ɛnj-ĕ*, **lĕl-ĕ*, which belong to the same general type as our Sarcee, Navaho, and Chipewyan examples.

VICTORIA MEMORIAL MUSEUM,
OTTAWA, CANADA

COWRY SHELLS FROM ARCHÆOLOGICAL SITES IN ONTARIO

ALTHOUGH shells of other small oceanic molluscs[1] have been from time to time found at both pre- and post-European sites in Ontario, no cowry shells were discovered until about 1910, when one was plowed up in a field near the "serpent mound," in Peterborough county.[2] This shell, however, may have no possible connection with

[3] Le Rév. Père Laurent Legoff, *Grammaire de la Langue Montagnaise*, Montreal, 1889; see p. 30.

[1] *Marginella apicina*, *Oliva litterata*, *Purpura lapillus*, and *Natica duplicata*.

[2] Montgomery, Henry, Recent Archæological Investigations in Ontario, Transactions of the Canadian Institute, Vol. IX, Toronto, 1910, pp. 7 and 12; Fig. 6, Plate IV.

the mound. In the summer of 1923 I saw two cowry shells (probably Money cowries, *Cypræa moneta*) in a small collection of archæological material obtained from a post-European Tionontati or Tobacco Nation Indian site, on lot 14, concession II, Collingwood township, Grey county. One of the shells was found on the surface and the other came from one of the cultural deposits or refuse-heaps at the site. The shells are not perforated for use as ornaments. Both are white with a bluish centre. Shells of *C. moneta* (except "dead" specimens) are of a yellowish color. The white color of these shells, therefore, may be due to long burial in the ashes composing the refuse-heaps.

It has been suggested that these cowry shells were introduced among the Indians by Hudson Bay Company traders. The site where they were found, however, belongs to a much earlier period (*ca.* 1639–1649) and the shells were probably traded to the Indians by the French.

It is of interest to note that the discovery of these additional specimens in Ontario makes a total of ten cowry shells from archæological sites in Canada and the eastern United States.[3] Probably others have been found, but these are the only specimens of which I have any record.

W. J. WINTEMBERG.

VICTORIA MEMORIAL MUSEUM,
OTTAWA, CANADA.

[3] See J. V. Brower, Prehistoric Man at the Headwaters of the Mississippi River, Minnesota Historical Society Collections, vol. VIII, part 2, St. Paul, 1896, p. 254, and Plate VIII; and Clarence B. Moore, Aboriginal Sites on Tennessee River, Journal of the Academy of Natural Sciences of Philadelphia, Vol. XVI, Philadelphia, 1915, pp. 293-294.

For an interesting paper on the distribution of the use of cowry shells, see J. Wilfrid Jackson, The Use of Cowry-Shells for the Purposes of Currency, Amulets, and Charms, Memoirs and Proceedings of the Manchester Literary and Philosophical Society, Vol. LX, Manchester, 1917, No. XIII, pp. 1-72.

ANTHROPOLOGY AT THE NEW YORK MEETING AND PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

The American Anthropological Association held its twenty-second annual meeting at the Explorers' Club, 47 West 76th Street, New York City, December 27 and 28, 1923, in conjunction with the American Folk-lore Society and the Maya Society.

Two meetings of the Council were held with President Hough in the chair.

Council Meeting, Dec. 27, 9 a. m.

The following reports were read and accepted:

Report of the Secretary

The proceedings of the last annual meeting of the Association were published in the *American Anthropologist* for January-March, 1923. There has been no special meeting of the Association nor of the Council during the year.

The anthropological membership of the Division of Anthropology and Psychology in the National Research Council is now as follows:

To serve until July 1, 1924: B. Laufer, J. W. Fewkes, A. E. Jenks.

To serve until July 1, 1925: M. H. Saville, F. G. Speck, J. R. Swanton.

The Association has lost by death during the year five members: Miss Adela C. Breton: Miss Alice Fletcher, a founder; Mrs. Martha J. Herrick; Dr. J. B. McGee; and Dr. George R. Stetson.

Six members have resigned, five have died, seven have been dropped, and sixty-one new members have been added, making a net gain of forty-three. The membership at present is as follows:

Honorary members	5
Life members	12
Regular members	581
	598

Respectfully submitted,

Alfred V. Kidder,
Secretary.

Report of the Treasurer

Receipts

Balance on hand, December 21, 1922			$1,330.20
American Ethnological Society		796.00	
Annual Membership dues:			
1918	5.00		
1919	5.00		
1920	5.00		
1921	11.00		
1922	80.40		
1923	2256.41		
1924	99.24	2462.05	
Sale of publications		513.57	
Reimbursements		406.11	
Interest		20.32	4198.05
			$5528.25

Disbursements

Geo. Banta Publishing Co.			
Printing, etc.	$3362.52		
Foreign postage	80.87		
Storage, Nov. 1922-Dec. 1923	130.00	$3563.39	
Maurice Joyce Engraving Co		498.29	
Drawings		32.50	
Editor, Secretary & Treasurer's expenses		132.45	
Miscellaneous expenditures		26.20	
Total disbursements		$4252.83	
Cash on hand		1275.42	$5528.25

Resources

Cash on hand Dec. 17, 1923			$1275.42
Due from sales:			
1922	$ 6.18		
1923	188.34	$ 194.52	
Due from dues:			
1922	30.00		
1923	174.00	$ 204.00	
Due from A. S. W.			
Vol. 24, no. 3—Vol. 25, nos. 1-3		200.00	
Due from A. E. S. dues		200.00	
Due from A. E. S. and A. S. W. after vol. 25, no. 4 appears		152.00	
Due from reimbursement for Memoir 29		378.60	
Due from miscellaneous reimbursements		22.27	1263.39
			$2538.81

Liabilities

Membership dues for 1924 already paid	99.24	
Cost of Anthropologist Vol. 25, no. 4 (Est.)	550.00	
Total liabilities	$649.24	
Net excess resources over liabilities	1889.57	$2538.81

Cost of Publications

American Anthropologist, Vol. 24, no. 3.			
Printing	$ 535.57		
Engravings	124.46	$ 660.03	
Reimbursements		26.26	$ 633.77
American Anthropologist, Vol. 24, no. 4.			
Printing	$ 378.30		
Engravings	155.65	$ 533.95	
Reimbursements		50.50	$ 483.45
American Anthropologist, Vol. 25, no. 1.			
Printing	$ 556.92		
Engravings	57.21	$ 614.13	
Reimbursements		111.88	$ 502.25
American Anthropologist, Vol. 25, no. 2.			
Printing	482.26		
Engravings	83.21	$ 565.47	
Reimbursements		48.86	$ 515.61
American Anthropologist, Vol. 25, no. 3.			
Printing	$ 498.06		
Engravings	28.00	$ 526.06	
Reimbursements		82.23	$ 443.83
Memoir 29.			
Printing	$ 365.77		
Engravings	82.26	$ 448.03	$ 448.03
Net Cost			$3026.94
Reprints and distribution			545.64
Total Cost			$3572.58

PERMANENT FUND

Receipts

Balance, Dec. 21, 1922		$1,543.37
Interest, April, 1923	$ 8.48	
Interest, Oct., 1923	6.37	12.75
		$1,560.37

Investments

Liberty bonds	$ 388.12	
W. S. S.	41.87	429.99
Cash awaiting investment		30.38
Loan to general fund		1100.00
		$1560.37

The accounts of the Treasurer, A. V. Kidder, have been examined and found correct.

E. A. HOOTON,
W. K. MOOREHEAD,
Auditing Committee

Respectfully submitted,
ALFRED V. KIDDER,
Treasurer.

REPORT OF THE EDITOR

During the past year the same printers have been employed as in the year preceding, The George Banta Publishing Co., of Menasha, Wis. As usual, four numbers of the *Anthropologist* (vol. 24, no. 4, and vol. 25, nos. 1, 2, and 3) have been issued. Vol. 25, no. 4 is in type and has been returned to the printers to be paged up. During the past year each number of the *Anthropologist* has been increased in size by one signature. The editor is also happy to be able to report the resumption of the issue of the *Memoirs*. In accordance with the vote of the Association at the Philadelphia meeting in 1920 the new *Memoirs* are to be issued separately instead of as parts of volumes, i.e., they are to form one series. Since the separate papers in the old series numbered twenty-eight, in order to articulate the new series with the old the first of the new series is numbered twenty-nine. This *Memoir* is entitled "The Concept of the Guardian Spirit in North America," and is by Ruth Fulton Benedict. The cost of publication was met by Dr. Elsie Clews Parsons. *Memoir 30*, "The Blood Sacrifice Complex," is by Dr. E. M. Loeb, who bears the greater part of the expense connected with it. The manuscript of a third *Memoir* is in the hands of the editor for publication in 1924, and a fourth has been promised.

Unforseen circumstances have prevented the editor from devoting as much care to the 1923 *Anthropologist* as he had intended and they now make it necessary for him definitely to resign the charge of the Association's publications. Without presuming to dictate a policy to his successor, a few suggestions based on the experience of the past three years may be in order.

In the first place it should be understood that the publications of our Association will absorb as much time as any able-bodied student can give to them. Every department is capable of improvement and in most cases of considerable improvement. In fact, to

make our publications what they ought to be, and what we all hope they may become, there should be a board of specialists in charge, covering the different branches of anthropology and the various sections of the globe. While it must be remembered that one man who will attend to his job is of more value than fifty better informed men who shirk and that where responsibility is divided shirking is apt to develop, it appears to me that some way may be devised through which more specialized experience can be brought to bear on each publication. An ideal solution would be the appointment of one salaried editor to devote his entire time to the publications and carry the responsibility for them and a supporting body of volunteer assistants to give him expert counsel in their several lines. This however, is beyond the means of the Association at the present time.

It is evident that there is now wide interest in anthropological subjects, and we must take every advantage of it. Fearful of running behind financially, I have perhaps withheld expense unnecessarily of late, but the journals must not be starved for the sake of a large surplus, and during the coming year I think the Association can afford to pay for all illustrations, except in a few unusual cases, and also to increase the size of the *Anthropologist* by one sixteen-page signature. I am inclined to favor the policy of meeting all of the bills of the *Anthropologist* out of our regular income, leaving the financing of the *Memoirs* largely to those desiring to do something additional. In these matters the advice and consent of the Treasurer are of course essential.

It was my original belief that the department devoted to news, the Anthropological Notes, should be much increased in order to furnish a means of communication between anthropologists, but experience indicates that such a function cannot be performed with much success in a journal which appears only four times a year.

In concluding my editorial work I wish to express my appreciation of the help I have received from my associate editors, the members of the committee on publication, and all connected with this Association to whom I have had occasion to appeal for advice and assistance. I am only too well aware of the extent to which I have fallen short in my attempts to give the Association the mediums of expression which it ought to have but believe that everything may be hoped of the future.

Respectfully submitted,

JOHN R. SWANTON,

Editor.

The Treasurer asked and received permission to defer the presentation of the budget for 1924 until after consultation with the new Editor. He was authorized to present the budget for approval to the Executive Committee.

It was moved and passed that:

The Council as a body act during the second Council Meeting as a nominating committee.

The following new members were elected: Laura M. Bragg, Joseph D. Taylor, Margaret E. Bard, D. S. Bullock, E. R. F. Johnson, G. E. Mayo, A. H. Fausset, Frans Blom, Mary Roberts Clark, S. Umehara, G. Uchiyama, F. Ortiz, K. Young, D. S. Davidson, D. Hooker, B. J. Phillips, K. Ruppert.

The following committees were appointed:

On resolutions to the retiring editor: P. E. Goddard, F. W. Hodge.

On resolutions: F. Boas, W. K. Moorehead, M. H. Saville.

On audits: E. A. Hooton, W. K. Moorehead.

Council Meeting, Dec. 27, 5 p. m.

It was moved and passed:

That a sub-committee of the nominating committee consisting of A. V. Kidder, F. Boas, and A. M. Tozzer be appointed to make nominations for the Council and to adjust the length of terms of those already serving on the Council in such a way that the constitutional provision that one-fourth of the councillors be elected annually, may in future be more easily complied with.

That the Committee of the Association on the American School in France of Prehistoric Studies be given power to act in the name of the Association in all matters regarding the relation between the Association and the School.

That the by-law of the Association requiring Annual Meetings to be held in the East be rescinded.

The report of Charles Peabody, Director for 1922 of the American School in France of Prehistoric Studies, was presented to the Council.

R. B. Dixon, Chairman of the Committee to investigate the status of Anthropology in United States government institutions presented a progress report.

N. M. Judd, Chairman of the Committee on the prevention of vandalism in Southwestern ruins presented a progress report and was directed by the Council to make a final report to the Executive Committee for publication in the *Anthropologist*.

ANNUAL MEETING, DEC. 28, 2.30 P. M.

The following list of officers was presented by the Nominating Committee:

President: Walter Hough.
Vice President (1927): G. G. MacCurdy.
Secretary-Treasurer: A. V. Kidder.
Editor: Robert H. Lowie.
Associate Editors: E. W. Gifford, F. G. Speck.
Executive Committee: H. J. Spinden, J. R. Swanton, M. H. Saville.
Council (new members): Martha W. Beckwith, Ruth Benedict, D. Cadzow, C. B. Davenport, Esther S. Goldfrank, G. B. Grinnell, Erna Gunther, A. I. Hallowell, M. J. Herskovits, F. LaFlesche, R. Linton, J. H. McGregor, B. Oetteking, A. C. Parker, Gladys Reichard, A. Skinner, R. J. Terry, T. W. Todd.
Representatives of the Association on the National Research Council to serve for three years from July 1, 1924: A. Hrdlička, A. V. Kidder.
Delegates of the Association to Section H. of the A. A. A. S.: N. C. Nelson, F. Boas.
The Council (after addition of new members and revision of terms of those already serving): F. Boas, W. H. Holmes, S. Culin, R. B. Dixon, J. W. Fewkes, F. W. Hodge, A. L. Kroeber, C. Wissler, W. C. Farabee, B. Laufer, G. G. MacCurdy, F. C. Cole, A. V. Kidder, R. H. Lowie (*ex officio*); S. A. Barrett, Martha W. Beckwith, Ruth Benedict, D. Cadzow, C. B. Davenport, Esther S. Goldfrank, G. B. Grinnell, Erna Gunther, A. I. Hallowell, M. J. Herskovits, A. E. Jenks, N. M. Judd, F. LaFlesche, R. Linton, J. H. McGregor, B. Oetteking, A. C. Parker, Gladys Reichard, A. Skinner, R. J. Terry, T. W. Todd (1924); R. T. Aitken, C. M. Barbeau, R. B. Bean, B. Cummings, S. Hagar, G. G. Heye, E. A. Hooton, B. T. B. Hyde, A. B. Lewis, S. K. Lothrop, S. G. Morley, J. E. Pearce, G. H. Pepper, F. G. Speck, L. Spier, H. J. Spinden, F. Starr, W. D. Wallis, H. N. Wardle, H. H. Wilder (1925); H. H. Donaldson, G. Engerrand, W. Gates, P. E. Goddard, S. J. Guernsey, C. E. Guthe, H U. Hall, E. S. Handy, C. L. Hay, J. P. Harrington, M. R. Harrington, W. W. Hyde, L. W. Jenkins, Theresa Mayer, T. Michelson, W. F. Ogburn, B. F. Schappelle, J. B. Stetson, A. M. Tozzer, S. Trotter, E. P. Wilkins (1926); H. Bingham, E. W. Gifford, G. B. Gordon, C. H. Hawes, D. Jenness, Rachael W. Lothrop, J. A. Mason, W. C. Mills, C. B. Moore, W. K. Moorehead, N. C. Nelson, C. Peabody, E. C. Parsons, E. K. Putnam, E. Sapir, F. H. Saville, M. H. Saville, H. I. Smith, L. R. Sullivan, H. Webster, C. C. Willoughby (1927).

The above officers and members of the Council were declared elected, and the terms of service of councillors already serving were declared revised, by a vote ordered cast by the Secretary.

The following committees were appointed:

Joint Committee on Relations with Central States Section: C. Wissler, G. G. MacCurdy, B. Laufer, S. A. Barrett.

Committee on Program: F. G. Speck (Chairman), A. V. Kidder (Sec'y *ex-officio*), P. E. Goddard, H. U. Hall, M. H. Saville, C. M. Barbeau, S. J. Guernsey, N. M. Judd, S. K. Lothrop.

Committee on Policy: Clark Wissler (Chairman), W. H. Holmes, S. Culin, G. B. Gordon, W. C. Mills, C. Peabody, F. Boas, J. W. Fewkes, A. E. Jenks, E. C. Parsons, A. M. Tozzer.

Committee on Publication: Walter Hough (Chairman *ex-officio*), R. H. Lowie (Sec'y *ex-officio*), S. A. Barrett, S. Culin, J. W. Fewkes, A. A. Goldenweiser, F. W. Hodge, E. A. Hooton, A. Hrdlička, A. E. Jenks, A. L. Kroeber, B. Laufer, G. G. MacCurdy, W. K. Moorehead, S. G. Morley, E. Sapir, H. J. Spinden, H. N. Wardle, C. Wissler. *Advisory Sub-committee:* F. W. Hodge (Chairman), J. W. Fewkes, B. Laufer.

Committee on Finance: R. B. Dixon (Chairman), Wm. Gates, G. G. Heye, C. B. Moore, E. E. Ayer, W. H. Furness, C. L. Hay, A. M. Huntington, J. B. Stetson, Jr.

The following papers were presented:

The situation at the Cahokia Mounds; The National Research Council and field-work. Warren K. Moorehead.

Archaeological correlations. H. J. Spinden.

Among the Southern Pai Ute fifty years ago. F. S. Dellenbaugh.

A new archaeological field in Utah. Neil M. Judd.

Texas kitchen middens. J. E. Pearce.

The East Indian Hussay as celebrated in Jamaica. Martha M. Beckwith.

The mythology of the Southwest. Ruth Benedict.

Micmac folklore. Elsie Clews Parsons.

Some representative legends of Texas and the Southwest current among Anglo-Saxon Americans. J. Frank Dobie.

The British Historical School. Robert H. Lowie.

Principles of the Wiyot language. Gladys A. Reichard.

Recent progress in Mayan studies. William Gates.

The explorations of Captain I. H. Cady at Palenque in 1840. Marshall H. Saville.

New Light on Maya Chronology. H. J. Spinden.

Explorations in the Maya area. Frans Blom.

A preliminary consideration of the culture areas of Africa. Melville J. Herskovits.

Tewa kin, clan and moiety. Elsie Clews Parsons.

A Palaeolithic practice. Robert H. Lowie.

Progress of the Pueblo Bonito expedition. N. M. Judd.

Recent Chilean field-studies among the Yahgans and Onas. John M. Cooper.

New excavations in Jacob's Cavern, Pineville, Mo. N. C. Nelson.

The following papers were read by title:

Nature as reflected in the art of the Palaeolithic Cave Man. George Grant MacCurdy.

House-types in the Neolithic period in Northern Europe. R. R. Schmidt.

The effect of race and environment on the physical and mental development of our Mexican immigrants. Franklin Cressey Paschal and Louis R. Sullivan.

The study of Maya antiquities as an aid to chronological determinations in other areas. A. V. Kidder.

The second season of excavations by the American School in France. Charles Peabody.

The following resolutions were offered and passed:

(1) Be it resolved that the American Anthropological Association hereby extends its sincere appreciation of the courtesies extended by the Explorers' Club upon the occasion of its 1923 annual meeting. The Secretary is hereby directed to transmit a copy of this resolution to the Explorers' Club.

(2) Be it resolved that the members of the American Anthropological Association hereby extend their hearty thanks to the local members of the Association for the very complete arrangements made for the meeting and for the hospitable entertainment afforded. The Secretary is hereby directed to notify the local committee of this vote of appreciation.

(3) The Association has lost one of its most active and distinguished members in the death of W. E. Myer who had made important contributions to our knowledge of the prehistoric peoples throughout the southeastern portion of the United States. The Association extends its sympathy to the surviving members of his family and directs that this resolution be spread upon our permanent records and that a copy of the same be sent to the family.

(4) Through the death of Miss Alice C. Fletcher, the American Anthropological Association has lost one of its Founders, and one who consistently maintained the highest ideals of our science. Miss Fletcher evinced a kindly interest in the work and progress of the younger anthropologists and never failed to buoy up with new enthusiasm her co-workers. Be it resolved that this testimonial of our regard for Miss Fletcher's high character and scientific attainments be spread upon the records of our Association.

(5) *Whereas*, Dr. John R. Swanton has been compelled for personal reasons to resign the office of Editor of the American Anthropological Association, which he has held since the beginning of 1921, and

Whereas, the officers and members of the Association, appreciating the great sacrifice of time, labor, and strength that Dr. Swanton has made in the interest of the Association, therefore be it

Resolved that the Council of the Association, at the annual meeting held in New York on December 27-28, 1923, having received and accepted the

resignation of Dr. Swanton with profound regret, hereby expresses its deep appreciation of his efficient and valued service always so unselfishly given to the Association, not only as Editor of the *American Anthropologist* and the *Memoirs* during the period above mentioned, but as Associate Editor for eleven years previously.

A. V. KIDDER,
Secretary.

ANTHROPOLOGICAL NOTES

THE UNIVERSITY OF CALIFORNIA, Department of Anthropology, has recently had a party of five investigators at work in the mounds between Tulare Lake and Buena Vista Lake, in the southern San Joaquin Valley. The expedition amplified the results of the Department's earlier investigators, Philip Mills Jones in 1899 and Nels C. Nelson in 1909, and prosecuted the investigations to a point which warrants the publication of a comprehensive paper on the archaeology of the region. The Department hopes to incorporate in this paper the results of study of several fine private collections in the region in question. The party recently returned from the field was composed of E. W. Gifford, W. Egbert Schenck, Mrs. Schenck, Eugene Golomshtok, and W. D. Strong.

Dr. TRUMAN MICHELSON, ethnologist in the Bureau of American Ethnology and Professor of Ethnology at George Washington University, has been appointed as Instructor in Anthropology at Columbia University for the summer session of 1924.

MR. OWEN CATTELL assisted by Mr. Donald A. Cadzow of the Museum of the American Indian, Heye Foundation, and by Lorenzo Chaves, a Zuñi Indian, took motion pictures of some of the Zuñi ceremonies. All the important arts and industries as well as some ceremonies are illustrated.

AMERICAN SCHOOL OF PREHISTORIC RESEARCH IN EUROPE

Under the joint auspices of the Archaeological Institute of America and the American Anthropological Association the School of Prehistoric Research was founded in 1920.

Students of both sexes are admitted from both North and South America; enrollment may be for the summer term, or for the entire year. There is no tuition fee.

The work of the summer term consists of excavations sufficient to give the students first-hand knowledge of methods and culture sequence; excursions to the most important Paleolithic, Neolithic, Bronze, and Iron-Age sites; the study of Museum collections; and lectures given not only by the Director of the School, but also (at various places) by distinguished European anthropologists.

After consultation with the Director, students may choose for the winter term the center of learning which may offer them the best

facilities for the working out of the problems, in which they are interested.

The fourth year will open on July 1st, 1924. Applications for admission to the School should be sent to the Chairman of the Governing Board, Dr. George Grant MacCurdy, Yale University, New Haven, Connecticut.

Field Museum Leaflets

In the beginning of 1922 the Field Museum of Natural History inaugurated a new series of publications known as Leaflets. This is a popular series in distinction from the scientific series of publications in which new material or new results are made known in the interest of science, and makes a direct appeal to the general public. The leaflets are intended to distribute accurate knowledge with reference to the Museum collections, and are illustrated by photogravures. The Department of Anthropology has so far issued twelve such leaflets. A series of four deals with the religious life of the North American Indians, and contains an account of the religious beliefs and principal ceremonies of the Pawnee. It will correct many current popular errors in regard to the religious notions of the Indians. The first (No. 5 of the series) contains a description of the Pawnee pantheon and of the ceremony of welcome to the returning gods which was performed when the first thunder was heard in the spring. The second (No. 6 of the series) describes the sacrifice of a captive maiden to the Morning Star and explains the beliefs responsible for this cruel practice. The third (No. 7 of the series) gives an account of the important ceremonies by which the tribe was purified, and the fourth (No. 8 of the series) describes the spectacular rites by which the medicine-men of the tribe renewed their powers and initiated new members into their order.

Two leaflets have been published illustrating material in the Joseph N. Field Hall; one on New Guinea masks, the other on the use of sago in New Guinea. The former describes briefly some of the more common types of masks, many of which are on exhibition in the hall. Probably the most striking masks used anywhere in the island are the tall feather masks occupying the case in the center of the hall.

As many villages in the low part of the island depend on the sago palm, their principal food supply, an account of its preparation and methods of cooking and serving gives some idea of the simple life of

these native peoples. Both leaflets are illustrated by photographs showing the natives actually using the various objects described.

Three leaflets are devoted to the culture of Japan. The first of these (No. 3 of the series) is a general description illustrated by 6 plates of the Japanese collections installed in Gunsaulus Hall, and including prints, sword mounts, armor, costumes, wood-carvings, paintings, and tapestry. The two others (Nos. 11-12 of the series) have reference to four exhibitions of color prints known as *surimono*, each of which is on view for three months during the year. These prints illustrate various phases of Japanese life and thought. The New Year's festival described in detail in Leaflet No. 11 is one of the most interesting celebrations in the yearly calendar. No. 12 contains a full account of the costumes worn by peasants, civilians, and nobles. Each of these is illustrated by four plates. Two other leaflets of this series dealing with Gods and Heroes and Temples and Houses are soon to come out.

A Chinese monumental gateway exhibited in Stanley field Hall is figured and described in the first number, while No. 2 gives a brief account of a Phillippine Forge Group. Use of Human Skulls and Bones in Tibet (No. 10) is written with reference to a unique ceremonial bone apron from Tibet composed of 41 plaques carved from human femora and elaborately decorated with figures and designs. The essay gives a great deal of information on the sacred use of human skulls in ancient and modern times and in all parts of the world.

The Department has also issued the first part of its Guide which gives a description of the new Hall of Oriental Theatricals containing exhibits from China, Tibet, Java, and Ceylon.

An Encyclopaedia of Social Science

At the recent meeting of American social science associations, held in Washington, a project for the publication of an encyclopedia of the social sciences was offered for consideration. The Sociological Society appointed a committee to confer with representatives of other groups. The Economic Association approved discussion of the enterprise will presently announce its conferees. The Political Science Association will act upon the proposition, through its Council, at their first meeting. Members of other bodies have expressed their interest in promoting such cooperation.

It is significant that scholars in various branches of social science feel the need of an authoritative summary of results in related fields.

It is timely that social investigators undertake an inventory of their collective work when the world is asking for proven material with which to build sound economy and government. It is encouraging that social engineers perceive the necessity of defining more accurately their several problems. This gesture may stimulate greater progress in the science of society, as the French *Encyclopédie*, by consolidating the best information of its day, turned men's thought to more careful study of the world of nature. The social sciences have outgrown the stage of schools of philosophy. They are now ready to begin organizing many scattering items of knowledge into a cogent body of principles.

The general plan suggested contemplates bringing together within the compass of a few volumes an analysis of the more important aspects of social life. This would probably include in part findings from adjacent fields of anthropology, history, sociology, economics and politics, comparative philology and aesthetics, religion, law and ethics. An example of even wider coordination is presented by the *Encyclopédie Scientifique*, now being published with the aid of the principal learned bodies in France. Whether or not the American work contemplated shall take the form of a dictionary of terms, a sequence of general articles, or a condensed series of outlines remains to be decided. In any event, it is agreed that each section shall present within the space allowed, the most thorough treatment available. Details of scope and method must obviously be placed in the hands of responsible editors.

To develop the scheme indicated, it is proposed that learned societies dealing with human relations each appoint a committee of three to collect and compare the opinions of their co-workers concerning the project. These committees can then exchange notes through a joint secretary. By May first a combined committee should be organized to consider general aspects of the work, such as scope and method, finance and editorial management. A conference of the whole committee during the summer may be arranged later. Results of such deliberation should be ready by next October to be put into the form of definite recommendations for discussion at the Holiday meeting of the constituent societies. If endorsed or modified at that time, the project will be ready for active promotion under competent direction.

Meanwhile, to bring this matter to the attention of American

students of the social sciences, and to obtain their prompt response, the following proposals are offered:

1. That every society interested print a copy of this notice in the next issue of its official journal.
2. That all executive officers of these societies be and are hereby urged to secure immediate appointment of three representatives from their body, whose names and addresses should be forwarded at once to the undersigned.
3. That these committees proceed forthwith to obtain from members of their societies expressions of opinion upon four points, viz.:
   a. Is an encyclopedia of the social sciences desired?
   b. Suggestions concerning general scope and method of such work—subject matter, treatment and form.
   c. Plans for financing the undertaking.
   d. Names of competent persons for
      i. Advisory Board
      ii. Editorial Staff
      iii. Contributors of special articles.

Pending organization of the joint committee to handle correspondence, communications and inquiries may be addressed to the undersigned:

HOWARD WOOLSTON, University of Washington, Seattle, Wash.
WM. F. OGBURN, Columbia University, New York City.
ALEXANDER GOLDENWEISER, New School for Social Research, New York, N. Y.

Members of the Sociological Society are urged to assist their committeemen by sending suggestions at once to one of the above.

RUSSIAN ANTHROPOLOGISTS

Since 1914 the constant succession of the Great War, revolution, and recent famine has undermined all branches of science in Russia. Anthropology has suffered the loss of four of her students.

F. K. VOLKOV, Professor of Anthropology at Petrograd University; President of the Anthropological Society and Curator of the Ethnological section of the Russian Museum of Alexander III, died in July, 1918

A. D. ELKIND, Editor of the Russian Anthropological Journal and Secretary of the Society of Natural History, Anthropology, and Ethnography in Moscow, died in November, 1920.

N. A. YANSIK, Russian ethnologist, died in December, 1921.

DIMITRII NICOLAIVITCH ANUCHIN, Russian anthropologist, died in the summer of 1923. He was born in Petrograd on August 27, 1843. His career began as a student of history at the University of Petrograd in 1860, but owing to illness he was compelled to discontinue his studies and go abroad. Three years later he resumed work at Moscow University, this time specializing in zoology. In 1867 he graduated and in 1873 obtained his Master's degree in zoology.

Though he had been interested during this time in anthropology, his real work in this field did not commence until 1875, when, under the direction of A. P. Bogdanov, he published his work on the physical anthropology of the Ainu. A year later he was sent by Moscow University to England, France, Germany, and Italy, where he studied museum collections and anthropology.

In 1880, Anuchin became the first professor of physical anthropology at Moscow University, and lecturer on archaeology at the Moscow Archaeological Institute. He also served as President of the Society of Natural History, Anthropology, and Ethnography, and was a Fellow of the Academy of Science. Several foreign universities made him Doctor *honoris causa*.

Dr. Anuchin is the author of numerous scientific works in zoology, anthropology, and archaeology, the most important of which are the following:

Anthropomorphic Apes and Lower Races of Humanity.
Ethnology of the Balkan Peninsula.
Notes on the Ethnology of Siberia.
Paleolithic Age in Russia.

Dr. Anuchin was not only a scholar of the first rank in Russia; he is also known as the father of modern anthropology in that country, occupying a position comparable to that of Boas in America. His work as a professor, lecturer, field-worker, and adviser in practically all investigations makes him a prominent figure in the anthropology not only of Russia but of the world.

EUGENE A. GOLOMSHTOK

ANTHROPOLOGY AT THE TORONTO MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, AUGUST, 1924

The ninety-second meeting of the British Association for the Advancement of Science it to be held at Toronto, Ont., from August

6th to 13th, 1924. The University of Toronto is in charge of the local arrangements. A number of distinguished British anthropologists have signified their intention to be present at the meeting of Section H (Anthropology) and it is hoped that many American and Canadian anthropologists will be able to attend as well. One of the interesting features of the program will be a discussion on "Mental Character and Race," in which the psychologists will participate. There will probably also be a discussion on cultural diffusion, introduced by Prof. Elliot Smith.

Those wishing to take part in the proceedings may do so on a payment of $7.50, made before or at the Annual Meeting; such members are also entitled to receive the Report of the Meeting. Those wishing either to attend the meeting without receiving the Report or to receive the Report without attending the meeting will be required to pay a fee of $5.00. For information relative to the meeting of the Association, inquiries should be addressed to Major John Mood, Local Secretary, B.A.A.S., Physics Building, University of Toronto, Toronto, Ont.; on matters referring specifically to Section H, information may be obtained from Dr. E. Sapir, Local Secretary of Section H, B.A.A.S., Victoria Memorial Museum, Ottawa. Ont.